GHOST-BIKES

ORIGINAL OPERATING MANUAL
GHOST E-HYBRIDE

GHOST®

Original Operating Manual

for GHOST EPACs of the Models

- E-HYBRID TRAIL 9000 LADY / MAN
- E-HYBRID TRAIL 4000 LADY / MAN
- E-HYBRID STREET LADY / MAN

CE

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Dear Customer,

We wish to congratulate you on your choice of an EPAC from our company and thank you for the trust placed in us.

With your EPAC you have acquired a high-quality, environmentally-friendly sports model with which you will have a great deal of pleasure while at the same time doing something to improve your health.

1 Fundamental information on your new EPAC and this operating manual

1.1 Scope of supply

1.1.1 Basic equipment

- complete bicycle with pedals and bottle holder (bottle holder only for the men's models)
- a transport lock for the disc brake
- charging device
- operating manual in your national language.

1.1.2 Optional accessories for installation by the specialist bicycle dealer

Please see *section 2.4.2, What must you bear in mind when retrofitting accessories and carrying out conversions?*,to find out which optional accessories can be retrofitted to your EPAC.

1.2 Other applicable documents

Delivery certificate
The delivery certificate is an important accompanying document which your specialist bicycle dealer has completed and handed over to you. This contains key data and other data about your EPAC. Your specialist bicycle dealer updates this document every time he works on your EPAC.

1.3 Legal regulations

As a road user you have to abide by the traffic regulations in your country.

In Germany do not need any official authorisation or driving licence for your EPAC.

On public roads and paths you are only allowed to ride your EPAC if you retrofit it with the equipment which is stipulated by law in your country. In Germany these requirements are laid down in the German highway code (StVZO).

NOTE:
Not all of the equipment required by law in Germany is included in the scope of delivery of your EPAC. Please contact your specialist bicycle dealer to retrofit these parts. Your specialist dealer will be pleased to advise you.

1.4 Conventions

1.4.1 Symbols an

⚠	**This draws your attention to how to deal with and the effects of safety information.**
⚠ **WARNING**	**This draws your attention to a dangerous situation which might result in death or injury if it is not avoided.**
⚠ **CAUTION**	**This draws your attention to a dangerous situation which might result in slight to moderate injury if it is not avoided.**
NOTE:	*This draws your attention to possible damage to property and other important information.*

1.4.2 Abbreviations

°	Degree, measure of angle size
A	Ampere, unit of current strength
AC	Alternating current
Ah	Ampere hour, unit of battery storage capacity
bar	Common unit of measure for air pressure
°C	Degrees Celsius, unit of temperature
DIN (German Industry Norm)	German Institute for Standardisation
EN	European norm
EPAC	**E**lectric **P**ower **A**ssisted **C**ycles, also called Pedelec (**ped**al **elec**tric) Bicycle with an additional electric drive which only operates when the driver also pedals at the same time.
h	Hour(s)
HWK	Chamber of Crafts (in Germany)
IHK	Chamber of Commerce and Industry (in Germany)
Sec.	Section
km/h	Kilometres per hour, unit of speed
kg	Kilogram, unit of mass
MTB	Mountain bike
Nm	Newton-metre, unit of torque
Pedelec	see **EPAC**
psi	**p**ound per **s**quare **i**nch, American unit of pressure (1 psi = 0.06897 bar)
RH	Frame height
StVO	German road traffic regulations (Highway Code)
StVZO	German Road Traffic Licensing Regulations
SW	Wrench size, measure of tool sizes
V	Volt, unit of electric tension
W	Watt, unit of electrical and mechanical power

1.4.3 Technical terms

Wobble	Colloquial term for radial eccentricity of the rim
Torque	also tightening torque. This states how much a screw should be tightened.

Specialist dealer/ specialist workshop	A business which is authorised by the authorities and the manufacturer to call itself a specialist business for the sale and repair of conventional bicycles and GHOST EPACS.
Hand force	The force that an average adult can apply with moderate to average effort using one hand.
Manometer	Air pressure measuring device
Correct screw connection	Permanent screw connection in which the screw heads are positioned tightly against the component over their entire area.
Incorrect screw connection	A screw connection which is too loose and where the screw heads are not positioned tightly against the component over their entire area. This can generally be recognised by a gap between the screw head and component.

1.4.4. Representation

In this operating manual we use the following representation rules:

- Safety instructions are represented with a symbol and a signal word and are printed in bold, see *section 1.4.1, Symbols and signal words*.
- Instruction texts are numbered.
- Information and cross-references are in italics.
- Representations in illustrations are not specific to any particular model. They apply to all EPAC models in this operating manual.
- Positional terms
  In these operating instructions we use the following designations for the position of objects in space (position details):
  the words left, right, front and rear always refer to the position in the direction of motion.

2 For Your Safety

2.1 Follow the instructions in this operating manual

⚠

- **Please ensure that your specialist bicycle dealer has completed the delivery certificate for your EPAC and that you have received all of the documents referred to in the delivery certificate.**
  - **– You should contact your specialist bicycle dealer if any items are missing.**
  - **– Please ride your EPAC only after you have received all of the documentation and read it carefully.**
- **You should always take this operating manual with you when you ride your EPAC and keep it protected against water and soiling. If your EPAC has a fault or malfunction, this operating manual contains important information.**
- **If you sell or give your EPAC to somebody as a present, you should also pass on this operating manual to the new owner.**

2.2 Consulting your specialist bicycle dealer

NOTE:
Even after providing advice and carrying out the final assembly, your bike dealer is still very important to you. He or she is your contact person for all types of servicing and maintenance, conversions and repairs. Please contact your specialist bicycle dealer if you have any questions concerning your EPAC.

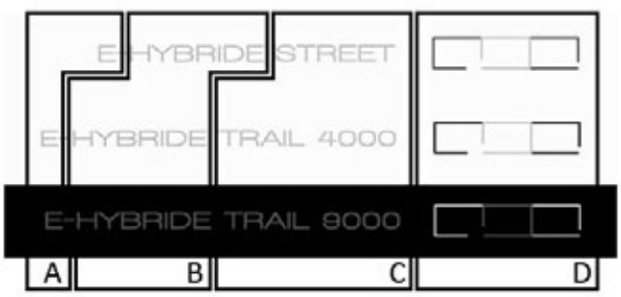
2.3 The meanings of markings on your E

This symbol means that your EPAC is subject to European Directive 2002/96/EC and means that you must dispose of your EPAC separately from the domestic waste by means of a return and collection system.

NOTE:
Details on disposal can be found in section 17, Disposing of the EPAC*.*

CE symbol on the type plate

This symbol means that your EPAC fulfils all fundamental safety requirements of the applicable European directives.



Type plate

You can find the following details on the type plate:

A	Manufacturer‘s address
B	Type of machine: EPAC
C	Model/Type: E-hybrid ...
D	Year of construction

2.4 Using your EPAC for its intended purpose

⚠

If you do not use your EPAC in accordance with the designated purpose this may result in dangerous riding situations, falls and accidents. Another consequence may be internal short-circuits in the rechargeable battery pack, causing the pack to catch fire. A damaged rechargeable battery pack can also cause a life-threatening electric shock.

You should always use your EPAC as described in this operating manual and any additional documentation that you may have.

2.4.1 What work may you carry out yourself on your EPAC?

⚠

Faults caused by incorrectly performed work to your EPAC may damage the EPAC and impair its operational safety. This can lead to dangerous riding situations, falls and accidents.

- **You may only carry out work to your EPAC which is described as such in this operating manual and for which you have the appropriate tools.**
- **Do not change the properties of individual components of your EPAC.**
- **All other work - including making the EPAC ready for the road - may only be carried out by a specialist bicycle dealer whose personnel have taken part in the official GHOST training courses for your EPAC.**
  Ask your specialist bicycle dealer to show you the certificate of attendance at a GHOST training course for your EPAC as proof of qualification.
- **Under no circumstances may you dismantle the rear wheel.**

2.4.2. What must you bear in mind when retrofitting accessories and carrying out conversions?

⚠

The retrofitting of accessories and performance of conversions which are not permitted for your EPAC may damage your EPAC and impair its operational safety. This can lead to dangerous riding situations, falls and accidents.

- **You should never retrofit your EPAC or carry out any conversions yourself.**
- **Always select the accessories and modification parts together with a specialist bicycle dealer who has been trained for your EPAC. When fitting accessories, ensure that the additional weight does not cause your EPAC to exceed the permitted maximum total weight.**
  The following accessories may be retrofitted:
  - **Equipment for riding the EPAC on public roads and paths in accordance with the regulations in force in your country**
  - **Click pedals**
  - **Luggage racks**
  - **Child seat if you are using a luggage rack which is authorised for a child seat. Please ask your specialist bicycle dealer He or she will be pleased to advise you.**
  - **Saddlebags if you are using a luggage rack which is authorised for saddlebags. Please ask your specialist bicycle dealer He or she will be pleased to advise you.**
- **You may have the following modifications carried out to your EPAC:**
  - **Saddle**
  - **Front wheel**
    ⚠ Not for the model E-HYBRID TRAIL 9000 LADY / MAN.

- **Always have accessories and modification parts mounted only by a specialist bicycle dealer who has been trained for your EPAC.**
- **Please ensure that you receive the documentation for your accessories and modification parts from your specialist bicycle dealer.**
- **Please ensure that your specialist bicycle dealer notes down in the delivery certificate which documentation you have received from him.**
- **Always take your delivery certificate with you if you purchase accessories and modification parts from your specialist bicycle dealer at a later time.**
- **Follow all of the safety instructions and specifications in the documentation for your accessories and modification parts.**

2.4.3. Who is allowed to ride your EPAC?

⚠

- **The rider must be at least 15 years old.**
- **The rider must be able to ride a bike, i.e. he/she must have the necessary basic knowledge about the use of a bike and the necessary feeling of balance to be able to steer and control an EPAC.**
- **The rider must be able to safely get on and off the EPAC.**
  This applies in particular in the case of ergonomically adjusted saddles if the rider's feet cannot reach the ground when he or she is sitting down.
- **The rider must be of the correct height for their EPAC and the maximum permitted loading weight must not be exceede**

	Correct Height			Max. Permitted Loading Weight
Frame height	**44**	**48**	**52**	**(Rider + children + rack)**
E-HYBRID TRAIL 9000	**155–165 cm**	**165-180 cm**	**180-190 cm**	**115 kg**
E-HYBRID TRAIL 4000	**155-165 cm**	**165-180 cm**	**180-190 cm**	
E-HYBRID STREET	**155-165 cm**	**165-180 cm**	**180-190 cm**	

- **Physical and mental fitness**
  If the rider would like to ride on public roads and paths:
  The rider must be able both physically and mentally to use public thoroughfares in safety.
  NOTE:
  Information on the technical conditions applicable to the use of public roads can be found in section 1.3, Legal regulations.
- **Stamina**
  It is possible to ride your EPAC for prolonged periods at high speeds. The rider must have enough stamina to be able to ride the EPAC safely for at least two hours.
- **Do not use your EPAC to compensate for physical infirmity or lack of fitness.**

NOTE:
There are wide range of offers available with respect to training to ride a mountain bike.
Such cycle training can help you to increase your safety when riding and improve your riding techniques.
Ask your specialist bicycle dealer about offers near you.

2.4.4 Where are you allowed to ride your EPAC?

⚠

If you overload your EPAC by riding on roads, paths and slopes for which your EPAC is not suited it is possible that parts of your EPAC will break or fail. This can lead to dangerous riding situations, falls and accidents.

You should only ride your EPAC on roads, paths and slopes which are authorised for your model according to the following table.

NOTE:
The model designation of your EPAC can be found on the type plate, see section □2.3, The meanings of markings on your EPAC and on the delivery certificate.

X = permitted - = not permitted	Specification	E-HYBRID TRAIL 9000	E-HYBRID TRAIL 4000	E-HYBRID STREET
Road	Asphalted surface			
· non-public		X	X	X
· public		-*	Only with legally required additional equipment, see *section 1.3, Legal Regulations.*	
Path	Sand, gravel or similar surface e.g. forest road, field track	X	X	X
· non-public		X	X	X
· public		-*	Only with legally required additional equipment, see *section 1.3, Legal Regulations.*	
Paved long-distance footpath	On easy terrain with slight to moderate gradients No or only a few roots, bumps, stones, ledges etc	X	X	-
Jumps		-	-	-
Unpaved long-distance footpath	With roots, bumps, stones, ledges etc.	-	-	-
Roller training devices		-	-	-
Sports park	Specially designated area for free riding, downhill, BMX and dirt	-	-	-
Downhill	Downhill rides at a high to very high speed and specifically designated slopes	-	-	-
Free-Riding	Artistic and sporting use, rapid downhill riding in free terrain	-	-	-

*For the E-HYBRID TRAIL 9000 model there is currently no hub dynamo. In countries where a dynamo is compulsory, it is therefore not permitted to ride this model on public roads and paths.

2.5 Residual dangers

2.5.1. Danger of burns

⚠

Strong vibrations through use of your EPAC which is not in accordance with the designated purpose, storage in an environment which is too hot (e.g. car interior in strong sunlight) and falls with your EPAC may lead to internal short-circuits in the rechargeable battery pack and therefore cause the rechargeable battery pack to catch fire.

- **You should usual EPAC in accordance with the designated purpose (see *Section 2.4*).**
- **Store your EPAC only in rooms with an ambient temperature of between -10°C and +35°C.**
- **Keep your EPAC away from sources of heat such as radiators, radiant heaters, ovens etc.**
- **If flames or smoke come out of the down tube you must immediately leave your EPAC where it is. Put out the fire with fire extinguishing equipment if available.**
- **If there is a danger that the fire will spread to neighbouring items, call the fire brigade immediately.**

2.5.2. Electric hazards

⚠

Through the use of an incorrect, damaged or broken charging device and mains cable you may receive a life-threatening electric shock.

A battery that is incorrectly charged or stored may begin to burn.

- **You should only use the charging device supplied to charge up the rechargeable battery pack of your EPAC.**
- **Keep the charging device and EPAC away from children and animals.**
- **Avoid all contact between your charging device and water.**
- **Do not charge up the rechargeable battery pack in bright sunshine.**
  Keep the rechargeable battery pack and charging device away from sources of heat (e.g. radiators).
- **You should only charge up your battery while you are supervising it.**
- **Under no circumstances must you use your charging device, or you must remove the mains plug immediately**
  - **if the charging device is damaged in any way**
  - **if the insulation of the cables or one or more plug-in connections are damaged. In this case you may only touch the mains plug at a point where it is insulated. If necessary, turn off the corresponding fuse in your electricity distribution box.**
  - **if the charging device is unusually hot. However, the production of a small amount of heat by the charging device and battery is normal.**
  - **if you hear unusual noises (e.g. loud humming, hissing etc.)**
  - **if there are sparks when you switch the device on and off, plug it in or unplug it**
  - **if smoke is produced by the charging device or EPAC.**

2.5.3. Other hazards and protective measures

⚠

Rotating wheels can injure your hands and other parts of the body.

- **Keep your hands and other parts of the body away from rotating wheels!**
- **Please ensure that any children sitting on mounted children’s seats cannot come into contact with the rotating wheels.**

3 Technical Data

Model	E-HYBRID TRAIL 9000 MAN / LADY	E-HYBRID TRAIL 4000 E-HYBRID STREET MAN / LADY
Mechanical Data		
Frame	Aluminium 3 frame sizes: 44 cm, 48 cm, 52 cm	Aluminium 3 frame sizes: 44 cm, 48 cm, 52 cm
Fork	Fox Forx 32 Float Fit RL 120mm 15QR	RST First 23 Air SRL 120mm
Gear change	Shimano XT	Shimano Acera
Derailleur	Shimano XT 9-speed	Shimano XT 9-speed
Front derailleur	Shimano XT 3-speed E-Type direct	Shimano SLX 3-speed E-Type direct
Number of gears	27	27
Brake	Shimano XT 180/160	Shimano BL-M445L saddle: BR-446L
Crank	Shimano XT, 3-piece	Shimano FCM-542, 3-piece
No. of teeth chain rings	44-32-22	44-32-22
No. of teeth geared ring	11-32	11-32
Tyre size	26 x 2.1	Street: 26 x 2.15 Trail: 26 x 2.1
Valve	Automatic valve	Automatic valve
Prescribed tyre pressure	2.0 – 4.0 bar	2.0 – 4.0 bar
Admissible ambient temperatures		
· Riding	-15 to +50°C	-15 to +50°C
· Loading	-5 to +50°C	-5 to +50°C
· Storage	-10 to +35°C	-10 to +35°C
Weight	22.4 kg (RH 48)	22.7 kg (RH 48)
Maximum permitted loading weight (rider + children + luggage)	115 kg	115 kg
Saddle support	Manufacturer: Simca Team Post Model/Type: rigid Connection: Saddle clamping Type of Connection: Two screws Torque screw connection: 8 - 10 Nm	
Electrical data		
Electric motor, type	XHP2, brushless	XHP2, brushless

Model	**E-HYBRID TRAIL 9000 MAN / LADY**	**E-HYBRID TRAIL 4000 E-HYBRID STREET MAN / LADY**
Power	250 W	250 W
maximum torque	40 Nm	40 Nm
Battery type	GP $LiNiCoMnO_2$ battery pack Downtube	GP $LiNiCoMnO_2$ battery pack Downtube
Operating voltage	36 Volt	36 Volt
Battery capacity	10 Ah	10 Ah
Charging device · Supply voltage · Charging current · Power consumption	Delta Electronics, DPS-84DB A · 230 V AC · 0.5 A · 100 W	Delta Electronics, DPS-84DB A 230 V AC 0.5 A 100 W
Charging time · initial charge · after initial charge	 up to 10 h 4 – 5 h	 up to 10 h 4 – 5 h
Display	CU2-2	CU2-2
Closing off of the pedalling support at	25 km/h	25 km/h

4 Design and Function

Your bicycle is a so-called EPAC or pedelec. That is a bicycle whose electric motor helps you to pedal. The pedalling assistance switches on automatically as soon as you pedal and switches off automatically as soon as you stop pedalling.

Pedalling assistance is provided up to a maximum speed of 25 km/h. The level of the support provided by the electric motor is determined by a control device attached to the handlebars.

	E-HYBRID TRAIL 9000 LADY / MAN	E-HYBRID TRAIL 9000 LADY / MAN	E-HYBRID STREET LADY / MAN
Bicycle with electric motor pedalling assistance up to 25 km/h. · The electromotor drive only switches on when you pedal · Electric motor in the rear wheel hub · Rechargeable battery pack not removable, integrated in the frame · No initial traction assistant	X	X	X
Basic bicycle type: Mountainbike (MTB)	X	X	X
27-speed Shimano derailleur	X	X	X
Front wheel fork with air suspension	X	X	X
Unsprung frame made of aluminium	X	X	X
Self-repairing tube in the rear wheel	X	X	X
Display on the handlebars	X	X	X
Disc brakes	X	X	X
Pedals without click system	X	X	X
Kick stand	-	-	-
Bottle holder (only on the men‘s model)	X	X	X

4.1 Brakes and brake configuration

- Your EPAC has one or two disc brakes which are independent of one another.
- The left-hand brake lever operates the front brake.
- The right-hand brake lever operates the rear brake.
- Please ride very defensively for as long as your braking system has not been run in.
- Run your brake in. The rule of thumb is: perform approximately 30 braking operations from a moderate speed (approx. 25 km/h) until you come to a standstill.
- Avoid long downhill riding for as long as your braking system has not been run in.
- As soon as your braking system has been run in, the braking force at your disposal is very strong. If you pull the brake lever too strongly, it is possible that the wheels will lock.
- If the front wheel blocks the EPAC may overturn.

4.2 Gears

Your EPAC has a derailleur, a crankset with three chainrings and a geared ring with 9 individual cogs. You have 27 gears at your disposal. The gear assembly provides you with the optimum gear for every speed and makes it easier to climb hills, for example.

4.3 Frame and Fork

Your EPAC has a rigid, unsprung main frame with integrated suspension fork. On the E-Hybrid 4000 and on the E-Hybrid Street the suspension of the fork can be almost completely blocked from the handlebars.

4.4 Wheels

NOTE:
A wheel/wheels is/are also called the front and rear wheel(s).

Your wheel consists of

- Hub: the electric motor is also located in the rear wheel hub
- Only on the rear wheel hub: geared ring, also called the cassette or sprocket cluster
- Brake disc
- Spokes
- Rim
- Tyres
- Rim reflectors (optional).

On your EPAC the wheels are attached as follows.

- Front wheel:
  - E-Hybrid Trail 4000 and E-Hybrid Street models: with quick-release axle (for operation see *section 8.4.1*).
  - E-Hybrid Trail 9000 model: with 15 mm thru axle (for operation see *section 8.4.2*).

- Rear wheel: with axle nuts

4.5 Rear tyre

Your rear wheel has a self-repairing tube which immediately seals holes caused by small items such as pieces of glass, small stones, thorns or small nails.

4.6 Electrical equipment

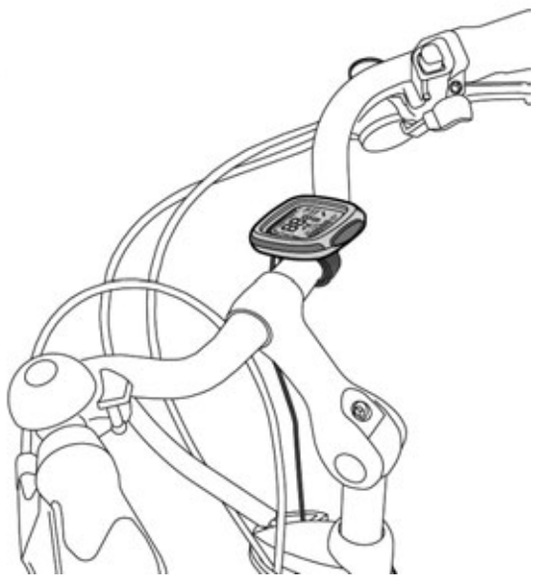
4.6.1. Rechargeable battery pack and motor

The motor is located in the rear wheel hub and is supplied by a rechargeable battery pack. The hub has a freewheel and a 9-speed sprocket cassette.

The rechargeable battery pack is in the down tube and cannot be removed.

4.6.2. Display

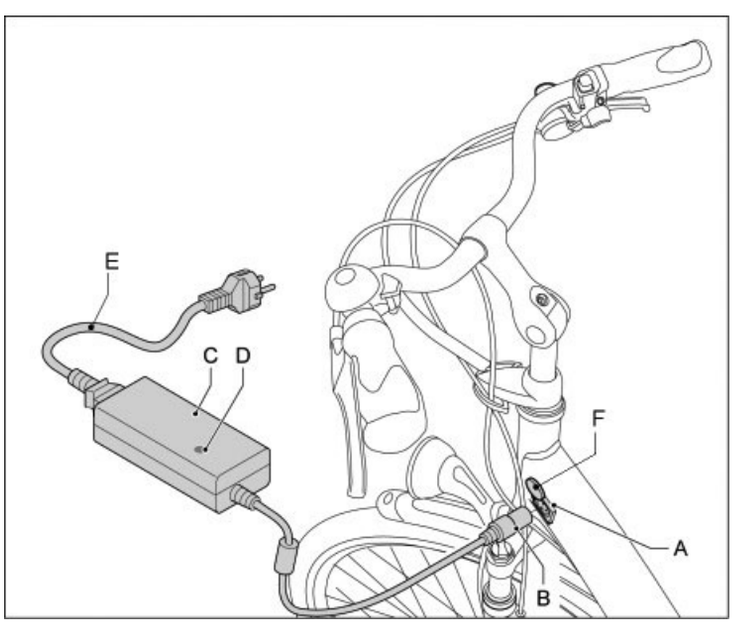
The display shows various items of important information while at the same time controlling various (drive) functions.



Your display is encoded. Your EPAC can only be used with the associated display. If an alternative display is installed before you try to move off, an error message appears and the electric drive cannot be switched on.

NOTE:
if you have two bicycles of the same type, your specialist bicycle dealer can adjust the displays in such a way that they work on both bicycles.

4.6.3. Charging device for rechargeable battery pack in the frame



A Charging connection
B Plug
C Battery charging device
D Indicator light
E Mains lead
F Covering cap

5 Before your first Ride

⚠ WARNING Danger from heavy falls and accidents
Your EPAC is preassembled when it is delivered to your specialist bicycle dealer. Some of the safety-relevant parts are not yet sufficiently mounted. The final assembly of your EPAC has to be carried out by your specialist bicycle dealer, i.e. it has to be made safe to ride.

- **Please make sure that your specialist bicycle dealer has completely filled in the "Inspection Checklist for the Handover" in the delivery certificate for your EPAC.**

- **You should only ride your EPAC if the sitting position is correct for you.**

  – **Have your dealer adjust the correct saddle height and position for you.**

  – **Ask your specialist bicycle dealer to explain to you the technology included in your EPAC.**

  – **Seal your EPAC with spray wax.**
  See *section 14.2, How to clean and care for your EPAC.*

  – **Charge your rechargeable battery pack fully.**
  See *section 8.5.1, Charging the rechargeable battery pack.*

  – **You should carry out the fine adjustment of the saddle height and position yourself.**
  See *section 7.1,* Adjusting the saddle position *and section 7.2, Adjusting the saddle height.*

6 Before Every Use

⚠ WARNING Danger from heavy falls and accidents
If your EPAC is not ready for operation this may result in dangerous riding situations, falls and accidents.

- **Before you ride your EPAC you should ensure every time that it is safe to operate.**
  You should also consider the possibility that your EPAC may have fallen over when it was not supervised or that strangers may have tampered with it.

- **Memorise the correct condition of your EPAC when new so that you can more easily recognise any deviations from the correct condition.**
  NOTE:
  Taking photographs may also prove valuable.

- **Contact your dealer immediately if the inspection reveals faults of any kind. You may correct small defects yourself if the appropriate measures are described below.**

- **You should contact your specialist bicycle dealer immediately if the measures for rectifying the defect are not described, you cannot perform them yourself or if these measures do not correct the problems.**

- **You should only use your EPAC again when it has been made safe to operate.**

⚠ WARNING Danger of injuries to fingers and arms, danger of accidents
The test measures might cause the EPAC to move off unexpectedly.
Please ensure that you switch off the electric drive of your EPAC before carrying out any tests.

- **Make sure that the electric drive is switched off.**
  See *section 10.3, Switching off the electric drive.*
- **Perform a visual check of all fastening screws to ensure that they are all correctly attached.**
  See *section 1.4.3, Technical Terms*.
- **Carry out a visual inspection of the entire EPAC for dents, cracks, deep scratches or other mechanical damage.**
- **If you find faults during the inspection:**
  contact your specialist bicycle dealer.

6.1 Inspecting the wheels

6.1.1 Checking the tightness

1. Shake both wheels strongly at right angles to the direction of travel.
   - The wheels must not move in their mounting.
   - The quick-release lever or thru axle must be closed
     See *section 8.4, Quick-release axles,* thru axle.
   - No cracking or grinding noises should be heard.

6.1.2 Checking the tyres

6.1.2.1 Checking the position of the valve

As a result of stresses and strains and low tyre pressure, the tyre and inner tube can move on the rim and result in incorrect positioning of the valves. The valve base may tear off during the journey and result in a sudden loss of pressure in the tyre.

1. Remove the valve nut.
1. Check the valve position:
   the valves must point in the direction of the centre of the wheel.
   Correct valve position:

Incorrect valve position:

6.1.2.2 Checking the tyre

1. Inspect your tyres for visible signs of damage, foreign bodies and wear.
   - The tyre rubber must have its original profile over its whole surface.
   - The tyre fabric under the rubber layer must not be visible.
   - There must be no visible blisters or cracks.
2. Remove any foreign bodies (thorns, small stones, pieces of glass or similar items) by hand or carefully with a small screwdriver.
   Check if air is then leaking out.
   If air is leaking out the inner tube has to be renewed. You may replace the inner tube of the front wheel yourself. The instructions for doing so can be found in *section 15.5.1, Front tyre flat.*
3. If air is escaping from the rear wheel you must not use your EPAC. In this case you should contact your specialist bicycle dealer.

6.1.2.3 Checking the air pressure

As a result of low tyre pressure

- the tyre and inner tube may move on the rim and result in the incorrect positioning of the valves. The valve base may tear off during the journey and result in a sudden loss of pressure in the tyre.
- the tyre may come off the rim in curves.
- the likelihood of a breakdown is increased.

NOTE:
The higher your body weight and the weight of the additional load, the higher the air pressure has to be in the tyre.

Guideline values can be found in the following table. Please note, however, that these values are only an approximate guide. If you have any questions, please contact your specialist bicycle dealer.

Please also pay attention to the minimum and maximum pressure stated on

Load in kilograms	Air pressure in bar
50	2,00
60	2,25
70	2,50
80	2,75
90	3,00
100	3,25
110	3,50

1. Unscrew the dust cap from the valve.
   NOTE:
   Your EPAC is equipped with an automatic valve.

2. Check the air pressure with a tyre pressure gauge at a petrol station or with an air pump with a manometer.
   NOTE:
   if necessary, ask the petrol pump attendant or your specialist bicycle dealer to show you how to use the pressure test equipment.

   - If the air pressure is too low:
     Increase the air pressure.
   - If the air pressure is too high:
     Reduce the air pressure by allowing air to escape through the valve.
     Check the air pressure again.

3. Screw the dust cap back on to the valve.

NOTE:
with a bicycle pump with manometer you can check the air pressure while you are pumping up the tyre. You should first of all let a small amount of air escape from the tyre and then increase the air pressure up to the desired value.

6.1.2.4 Checking that the tyre is correctly fitted

1. Lift the front wheel.
2. Turn the front wheel by hand.
   The tyre must run smoothly.
   There must be no wobble or eccentricity.
3. Check the back wheel in the same way as the front wheel.

6.1.3 Checking other points

1. Check whether there are any other loose items such as twigs, substance residues or similar items in your wheels.
2. Remove such items carefully.
3. If you have had spoke reflectors fitted, check that these are firmly fitted in place.
4. If they are loose, please remove them completely.
5. Check whether your wheels have been damaged by these loose parts.

6.3 Inspecting the saddle and saddle post

⚠ WARNING Danger from heavy falls
If the insertion depth of the saddle post is too small, it may be released from the frame while you are riding and lead to dangerous situations, falls and accidents.

Please ensure the correct insertion depth of the saddle post, see also *section 7.2 and 8.4.*

1. Try to twist the saddle and post in the frame by hand.
   It must not be possible to twist the saddle and saddle post.

2. Try to move the saddle in its clamp with your hand by alternately pushing down and pulling up.
   The saddle must not move.

3. If the saddle and/or saddle post do move,
   please tighten them (*see sections 8.4.3 and 9*).

6.4 Inspecting the handlebars and handlebar stem

⚠ WARNING Danger from heavy falls and accidents
Incorrectly mounted or damaged handlebars and handlebar stems may result in dangerous riding situations, falls and accidents.

- **If you discover damage to these parts or have any doubt about their integrity, you must not use your EPAC again under any circumstances.**
- **Contact an approved workshop immediately.**

1. Perform a visual check of the stem and handlebars.
   - The handlebar stem must be parallel to the front wheel rim.
   - The handlebars aligned at right angles to the stem.
2. Clamp the front wheel between your legs.
3. Grip the handlebars at both ends.
4. Try to twist the handlebars in both directions with your hands.
5. Try to twist the handlebars in the handlebar stem with your hands.

   - None of the parts must twist or move.
   - No cracking or grinding noises should be heard.

6.5 Inspecting the handlebar attachments

How to check the attachment of the gear lever, brake levers and grips:

1. Grip the front wheel firmly between your legs or hold the handlebars tightly with one hand.
2. Try to turn the brake levers with your other hand.

3. Try to turn the gear lever with your other hand.
4. If your EPAC has been retrofitted with a bell, try to twist this with light hand pressure.
   - It must not be possible to move or twist any of the parts.
   - No cracking or grinding noises should be heard.

6.5 Inspecting the headset

The headset is the mounting of the handlebar stem in the fork column. Via this mounting, steering movements are transmitted to the front fork.

1. Check your headset. It must be possible to steer the front wheel easily in both directions without backlash.
2. Stand alongside your EPAC and hold the handlebar grips with both hands.
3. Apply the front wheel brake and keep the brake applied.
4. Push your EPAC forward and back with short, jerky movements.
   - The headset must not exhibit any play.
   - No cracking must be heard or felt.
   - No crunching noise may be heard.
5. Turn the handlebars with the front wheel several times to the left and right.
   - It must be possible to steer the front wheel easily in both directions without any play.
   - The handlebars must not lock in any position.
6. If you find any defects during the test:
   contact your specialist bicycle dealer.

6.6 Inspecting the spring fork

1. Apply the front wheel brake and keep the brake applied.
2. Press with your body weight onto the handlebars so that the spring fork is compressed.
3. The fork must move easily up and down.
4. No cracking or grinding noises should be heard.
5. Grip the front wheel between your legs and try to pull up the EPAC by the handlebars.
6. The standing tubes must not be released from the fork tubes or from the crown.

6.7 Inspecting the brakes

⚠ WARNING Danger from heavy falls
Failing brakes always result in dangerous riding situations, falls and accidents. A brake malfunction is a serious danger to safety.

- **Pay particular attention when checking your brake system.**
- **Under no circumstances should you continue using your EPAC if it has any defects. Contact your specialist workshop immediately if you discover any defects and the requirements referred to in *sections 6.7.1 and 6.7.2* are not fulfilled.**

NOTE:
During prolonged tours over several days the brake disc and brake linings can become severely worn.

- **You should plan tours lasting several days in such a way that you can have any necessary servicing work carried out at specialist workshops.**
- **As a precaution you should carry brake linings for your brakes with you. If you do this you will avoid having to break off your tour if the specialist workshop does not have your type of brake linings in stock.**

6.7.1 Checking general functions

How to check the function of your braking system:

1. Pull on both brake levers completely with the bike at a standstill. The smallest distance between the brake lever and handlebar grip must be at least 10 mm.

2. Try to push the EPAC with both brakes applied.
Both wheels must remain locked.

6.7.2 Checking the hydraulic disc brake

⚠ WARNING Danger from falls and accidents
Oil and grease on the brake discs can reduce the braking effect and lead to dangerous riding situations, falls and accidents.

- **Soiled brake discs must be cleaned immediately, see *section 14.2, How to clean and care for your EPAC.***

1. Pull the brake calliper alternately in all directions with your hands. The brake calliper must not move.

2. Pull the respective brake lever with the bike at a standstill and hold the brake lever in this position. The pressure point must not move.
3. Inspect the brake system visually from the brake lever along the lines up to the brakes. No hydraulic fluid should escape at any point.
4. Inspect the brake disc for damage. It must not exhibit any dents, cracks, deep scratches or other mechanical damage.
5. Raise the front and rear wheels alternately and turn the wheel by hand. The brake disc must run smoothly.
6. Inspect your brake discs for soiling, in particular for oil and grease. Clean the soiled brake discs immediately. (see *section 14.2 ,How to clean and care for your EPAC*).

6.8 Inspecting the drive and chain

1. Turn the right-hand pedal arm in an anti-clockwise direction and observe the chainwheels and the sprocket assembly from above.
   - The chainwheels and sprockets must not have any lateral runout.
   - There must not be any foreign matter in any of the components. Remove any such foreign matter if it is easy to do so.
2. Press the left-hand pedal arm towards the chain run in the position shown.

   - You should not feel any bearing play.
   - No cracking or grinding noises should be heard.
3. Inspect the chain for damage.
   The chain must not be damaged at any point, e.g. by bent chain links, protruding chain link pins, etc. or jammed and immobile chain links.
4. With the bike at standstill, turn the right-hand pedal lever contrary to the drive direction and observe the chain run at the derailleur rollers of the rear derailleur.
   The chain must run smoothly over the derailleur rollers and must not jump.

6.9 Checking the lights (optional)

NOTE:
This section only applies if you have retrofitted your EPAC with equipment for public roads, see section □1.3, Legal regulations.

⚠ WARNING Danger from falls and accidents
Failure of the headlight and rear light can lead to dangerous riding situations in the dark and/or poor visibility. You might fail to see obstacles or be overlooked yourself by other road users.

You should use your EPAC in such visibility conditions only with the lights switched on and fully functioning.

1. Turn on your lights.
   See user information for your lights.
2. Lift the front wheel.
3. Rotate the front wheel vigorously by hand.
   - The headlight and rear light must come on.
   - If your EPAC has a parking light, the headlight and rear light must also light up when the front wheel stops turning.

6.10 Checking the luggage rack (optional)

NOTE:
This section only applies if you have retrofitted your EPAC with a luggage rack.

⚠ WARNING Danger from falls and accidents
Loose luggage rack parts can cause the wheels to lock and result in serious falls.

Use your EPAC again only when the luggage rack has been properly attached in an approved workshop.

1. Shake the luggage rack at right angles to the direction of travel with your hands.
   - The luggage rack mountings must not come loose.
   - The luggage rack or parts of it must not touch the tyre.

6.11 Checking the kickstand (if present)

⚠ WARNING Danger from falls and accidents
If the kickstand is folded out while you are riding the EPAC, this may result in serious falls. This also applies to a kickstand which folds out automatically while you are riding.

A kickstand which is bent, too short or too long will not provide your EPAC with sufficient stability. Your EPAC can fall over, injuring you or other individuals.

Your EPAC and other objects located nearby, such as other bicycles, cars etc. may be damaged.

- **Always fold away the kickstand before riding the EPAC.**
- **You should have bent kickstands repaired or replaced in a specialist workshop.**
- **Kickstands whose length can be adjusted:**
  have the right length adjusted in a specialist workshop if your EPAC is not stable.

1. Carry out a visual inspection of the screw connections of the kickstand.
2. Always fold up the kickstand before riding your EPAC. The stand must not fold downloads of its own accord.
3. Lightly tap the arm of the kickstand in a downwards direction.
   The arm of the kickstand must not fold downwards.
4. Kickstands whose length can be adjusted:
   use the force of your hand to check that the extendable part cannot be moved.

6.12 Checking the drive electrical system

⚠ WARNING Danger of fire
A broken or damaged drive electrical system can cause a short circuit. This means that there is a danger of fire.

- **Carry out a visual inspection whether all electric cables are undamaged and correctly laid.**
- **Do not turn on the electrical control system until you have completed all of the other tests.**
- **Check for any error messages in the display.**
- **You should only use your EPAC if the drive electrical system is free of faults and there are no error messages in the display. Otherwise you should only use your EPAC again when it has been repaired in a specialist workshop.**

6.13 Checking other points

⚠ WARNING Danger from cuts
Damaged parts of your EPAC may have sharp edges and cause injury.
Check all parts for damage.

Have any damaged parts repaired or replaced immediately in an approved workshop.

7 Adjusting the EPAC

NOTE:
You may carry out certain adjustments to your EPAC yourself. You should only carry out this work yourself if you have the stated tools.

7.1 Adjusting the saddle position

Your saddle is attached with a clamping bolt. You need an Allen key and a torque spanner with a 5 mm hexagon socket bit attachment.

Adjusting the horizontal position or angle of your saddle:

1. Loosen clamping bolt A by a few turns until the saddle can be moved easily and/or the angle can be easily adjusted.
2. Move the saddle to the desired position. You can change the inclination with adjustment screw B.
3. Retighten the clamping bolt with the torque spanner. Prescribed tightening torque: 8 – 10 Nm.

7.2 Adjusting the saddle height

1. Loosen the clamping of the saddle post.
   See *section 8.4.3, Opening and closing the* quick-release axle on the saddle post clamp.
2. Move the saddle with saddle post to the desired position.
   Note the instructions for the insertion depth of the saddle post, see *section 13.2, Installing and dismantling the saddle post with the saddle.*
3. Clamp the saddle post securely in position.

7.3 Adjusting the spring fork

7.3.1 Adjusting the air pressure

NOTE:
Your suspension fork has air suspension. You can adjust the springing behaviour by means of the air pressure. For the adjustment you need a special suspension fork pump. The use of other pumps may damage your suspension fork.

You can purchase a suspension fork pump that is suitable for your EPAC from your specialist bicycle dealer. If you do not have such a pump, have your suspension adjusted by your specialist bicycle dealer.

With a lever on the handlebars (only for the E-Hybrid 4000 and E-Hybrid Street) you can almost completely block the suspension of the fork - the fork tubes can then only compress and rebound to a small extent.

⚠ WARNING Danger from falls and accidents
At a high speed, particularly when riding downhill on unpaved terrain, riding behaviour with a blocked suspension fork is very poor. The front wheel may lose contact with the ground.
You should release the blocked suspension fork before riding (downhill).

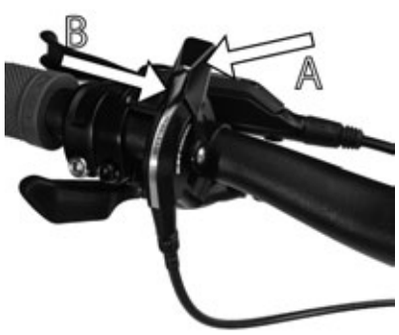
1. The rule of thumb is: The suspension fork should sink in approximately 20 to 25% of the total suspension travel distance when the rider sits on the bicycle in the riding position. In the case of the forks used here with a suspension travel distance of 120 mm, this 20 – 25% corresponds to a value of 24 – 30 mm.
   If you are not certain how to carry out the adjustment, please contact your specialist bicycle dealer.
2. Screw the head of the suspension fork pump on to the connection of your suspension fork.
   Position of the connection: *See the user information of the suspension fork manufacturer.*
3. Continue pumping until you have reached the required air pressure.
4. Unscrew the pump head.
   NOTE:
   Unscrew the pump head quickly in order to keep the amount of air escaping (which can be heard as hissing) as small as possible.

7.3.2 Switching off the suspension

NOTE:
This section only applies to the EPAC types E-Hybrid 4000 and E-Hybrid Street.

With a lever on the handlebars (only E-Hybrid 4000 and E-Hybrid Street) you can almost completely switch off the suspension of the fork. The fork tubes can only move in and out to a small extent.

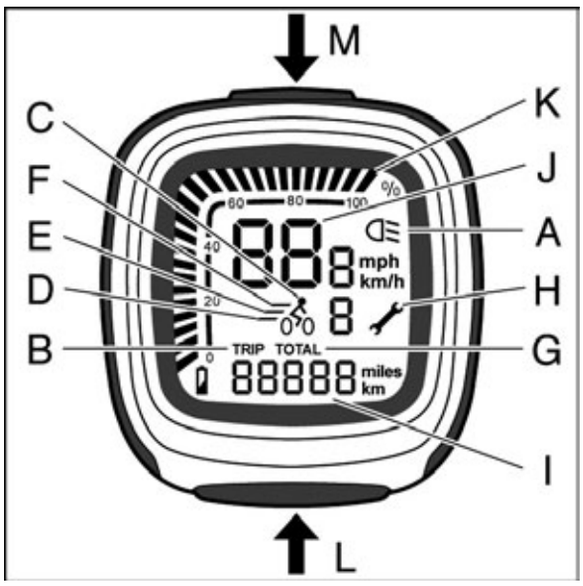
⚠ WARNING Danger from falls and accidents
At a high speed, particularly when riding downhill on unpaved terrain, riding behaviour with the suspension switched off is very poor. The front wheel may lose contact with the ground.
You should switch on the suspension fork before riding your EPAC fast (downhill).



1. Switching off the suspension:
   Press lever A until it locks in place.
2. Switching on the suspension:
   Press lever B until lever A jumps back to the starting position.

8 Operating the EPAC

8.4 Display



A	„Illumination“ symbol	This appears when you switch on the illumination of the display. It goes off when you switch off the illumination of the display.
B	Trip counter display	This shows the distance covered on the trip (standard setting). Resetting the trip counter to 0: Press the set button (L) for 5 seconds.
C	Pedalling assistance display 0	The pedalling assistance is switched off.
D	Pedalling assistance display 1	ECO The weakest pedalling assistance level Greatest range
E	Pedalling assistance display 2	NORMAL The middle pedalling assistance level Medium range
F	Pedalling assistance display 3	POWER The strongest pedalling assistance level Shortest range
G	Total distance display (annual kilometres)	After the pedalling assistance or illumination is switched on this shows the total distance covered for 15 seconds. After 15 seconds the display automatically switches over to the trip counter distance.

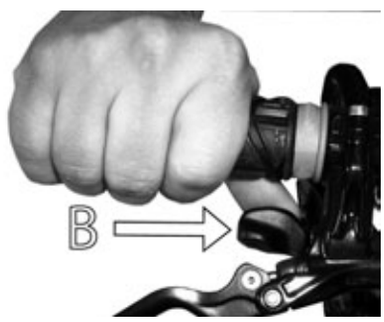
H	„Tool“ symbol with code number	This shows that there is a fault in the electrical drive system which you cannot repair yourself. *NOTE:* *You should contact your specialist workshop for bicycles immediately. Continuing to ride the EPAC may cause material damage.* *For the meaning of the code number see section 15.6.2, Diagnosis* messages.
	„Tool“ symbol without code number	This shows that the regular service is due. *NOTE:* *Contact a specialist bicycle dealer as soon as possible and have the service carried out. Do not ride your EPAC until the service has been performed.*
I	Code number without the „tool“ symbol	This shows that there is a fault which you may be able to correct yourself. *NOTE:* *For the meaning of the code number see section 15.6.2, Diagnosis* messages.
J	Display of the current speed	This permanently shows the current speed.
K	Display of the charge status of the rechargeable battery pack	This shows the charge status of the rechargeable battery pack in 4% steps.
L	Set button	This switches the pedalling assistance on and off. It also sets the pedalling assistance level. Press the set button repeatedly until the desired pedalling assistance level appears in the pedalling assistance display. The „cyclist“ symbol appears on the left next to the pedalling assistance level shown.
M	Light button	This switches the illumination of the display on and off. Switching on the illumination: Press the light button (M) briefly. The „illumination“ symbol appears in the display. The illumination of the display is switched on. Switching off the illumination: Press the light button (M) again briefly. The „illumination“ symbol disappears from the display. The illumination of the display is switched off. *NOTE:* *Even if the EPAC is stationary, the illumination of the display remains switched on.*

8.2 Gears

Your EPAC has a derailleur made by Shimano with so-called Rapidfire gear levers. When the gear is changed, the chain is moved to a different cog. On the crankset these cogs are referred to as “chainrings”, and on the geared ring “sprockets”.

The gear can only be changed while the EPAC is moving. The crankset must turn in the direction of the drive.

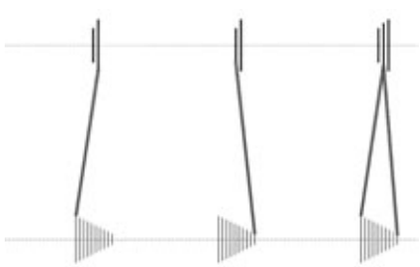
Your gear shift has two levers. Lever A is used to shift to a larger chainring or sprocket, lever B to a smaller chainring or sprocket.



The left-hand switch operates the front derailleur. Switching to a larger chainring results in a higher gear ratio (= higher gear). The resistance to pedalling becomes higher, but you can reach a greater speed.

The right-hand switch operates the rear derailleur. Here switching to a larger sprocket results in a lower gear ratio (= lower gear). The pedalling resistance becomes lower, you can only reach a lower speed, but it is easier to climb hills.

NOTE:
If you ride with the unfavourable chain positions shown you will increase the level of noise produced and the wear and tear.



- Avoid:
  - *largest chainring + largest sprocket*
  - *middle chainring + largest sprocket*
  - *middle chainring + smallest sprocket*
  - *smallest chainring + smallest sprocket*

NOTE:
Incorrect operation of the gear shift levers can damage your drive components.

- **Never operate both shift levers or both switches at the same time!**
- **This applies to switches on the crankset (left-hand switch): never change gear under a load!**

8.2.1 Switching to a larger chainring/sprocket:

1. Please pedal in the direction of the drive.
2. Press lever A with your thumb beyond the first locking step until you hear a clear click and hold it pressed until the desired gear is engaged.
3. If you would like to leave out several gears, press the lever right down and hold it pressed until the desired gear is engaged.

8.2.2 Switching to a smaller chainring/sprocket:

1. Please pedal in the direction of the drive.
2. Pull lever B until you feel and hear it engage and then release the lever again immediately.

8.3 Brakes

⚠ WARNING Danger from falls and accidents
If you operate the brakes too firmly this can lock the wheels and cause the EPAC to skid or roll over.

- **Please familiarise yourself with the operation of the brakes. Begin by riding slowly and operating the brake lever gently.**
- **You should perform these braking exercises on level surfaces without any road traffic.**
- **Brake in a controlled manner and press both brake levers at the same time.**

NOTE:
Disc brakes only develop their full braking power after a certain "running-in phase". The rule of thumb is: After 30 brief braking operations from a medium speed (approximately 25 km/h) down to a standstill the brakes are considered to have been run in. Avoid long downhill riding for as long as your braking system has not been run in. As soon as your braking system has been run in, the braking force at your disposal is very strong. If you pull the brake lever too strongly, it is possible that the wheels will lock.

NOTE:
Approximately 65% of the total braking power is provided by the front wheel brake.
The maximum braking power is achieved by operating both brake levers at the same time.

1. Pull the lever towards the handlebars to actuate the brake.

8.4 Quick-release axles, thru axle

The hub of your front wheel is attached with a quick-release axle or with a thru axle in the fork. The clamping of your saddle post is equipped with a quick-release axle. These clamping systems permit quick removal and installation of these components without the use of tools.

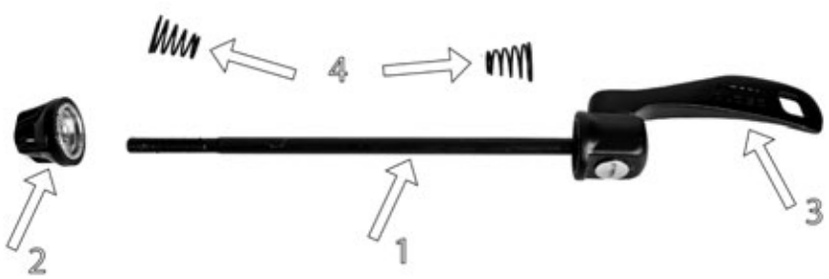
⚠ WARNING Danger from falls and accidents
If the wheels and saddle post are not correctly mounted, these parts can become loose and as a result lead to dangerous riding situations, falls and accidents.

- **Comply with the following description.**
- **Practise the operation of the quick-release axle and/or thru axle several times and regularly.**
- **If after installation you are not sure whether your front wheel and/or the saddle post have been correctly mounted, do <u>not</u> use your EPAC and consult your specialist bicycle dealer.**

8.4.1 Opening and closing the quick-release axle on the front wheel

NOTE:
This section applies to the models

- E-HYBRID TRAIL 4000 LADY / MAN
- E-HYBRID STREET LADY / MAN



1	Axle	3	Lever
2	Nut	4	Spring

1. Opening the quick-release axle

· Press the eccentrically pivoted lever away from the hub.
The lever can now be turned by approx. 180° about its own axis.

· Turn the screw nut in an anti-clockwise direction until the wheel can be pulled out of the frame or front forks without great effort.
NOTE:
Make sure that you do not lose the springs.

2. Closing the quick-release axle

· If the quick-release axle was completely removed from the hub:
push it through the hub from the left-hand side (as seen in the riding direction).

· Place the spring and screw nut on to the quick-release axle.

· Turn the nut in a clockwise direction on to the right-hand end of the quick-release axle, which is protruding out of the hub.

3. Tilt the eccentrically pivoted lever so that it forms roughly the extension of the hub axle. Hold the lever in this position.

4. Now turn the screw nut until the eccentrically pivoted lever when turned through 90° about its pivot can only move against a resistance (it then forms more or less the straight extension of the hub axle).

5. Now press the lever by a further 90° up to its end position.

6. Testing the adjustment of the quick-release lever:

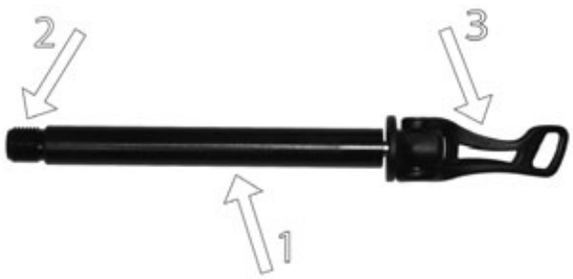
   · If the quick-release lever does not close tightly enough:
   ⚠ WARNING Danger from falls and accidents
   If the quick-release lever is too loose when closed, the front wheel may become loose and move its position. This can lead to dangerous riding situations, falls and accidents.
   Open the quick-release lever.
   Tighten the nut slightly in a clockwise direction.
   Close the quick-release lever.

   · If the quick-release lever closes too tightly:
   ⚠ WARNING Danger from falls and accidents
   If the lever cannot move in its final position (90° to the hub axle) because the pre-tension is too great, it is possible that the lever will become loose of its own accord while you are riding the EPAC, so that the front wheel also becomes loose. This can lead to dangerous riding situations, falls and accidents.
   Open the quick-release lever.
   Loosen the nut slightly in an anticlockwise direction.
   Close the quick-release lever.

7. Check the tightness of the wheels as described in *section 6.1.1*.

8.4.2 Opening and closing the thru axle

NOTE:
This section applies to the models E-HYBRID TRAIL 9000 LADY / MAN.



1 Axle
2 Thread
3 Lever

NOTE:
The opening and closing procedure for the thru axle is the same as that for opening and closing the quick-release axle on the front wheel, see section 8.4.1. Opening and closing the quick-release axle on the front wheel.
The lever of the quick-release axle is closed by turning the quick-release axle itself.

8.4.3 Opening and closing the quick-release axle on the saddle post clamp

1 Axle
2 Knurled nut
3 Lever

NOTE:
The opening and closing procedure for the quick-release axle on the saddle post clamp is the same as that for opening and closing the quick-release axle on the front wheel, see section 8.4.1. Opening and closing the quick-release axle on the front wheel.

- The quick-release lever of the quick-release axle is closed by turning the quick-release axle itself.
- To open and close it you should only operate the quick-release lever. You do not have to further loosen or completely release the entire axle in order to dismantle the saddle post.
- You should only turn the knurled nut if the quick-release lever can be moved too easily or only with difficulty.
- Before closing the quick-release lever, ensure that the clamp is flush and in the correct position on the seat tube.

8.9 Electric drive

8.9.8 Charging the rechargeable battery pack

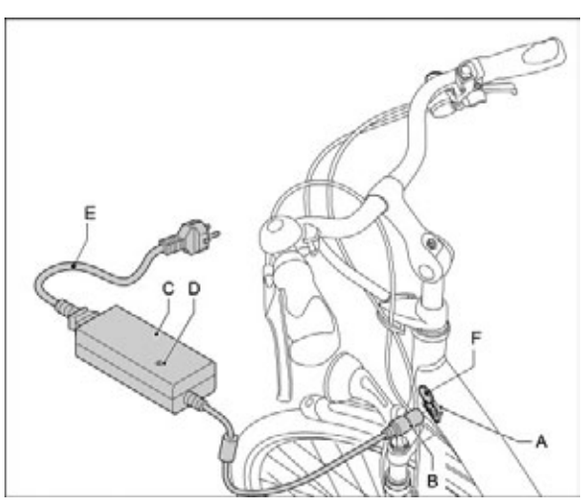
⚠ WARNING Danger from electric shock and burns

Through the use of an incorrect, damaged or broken charging device or mains cable you may receive a life-threatening electric shock.

- **You should only use the charging device supplied to charge up your EPAC.**
- **Only use the charging device if it is in perfect condition. Do not use the charging device if it is damaged in any way, e.g. if the cable insulation or individual plug connections are damaged.**
- **If during the charging procedure you notice that**
  - **the cable insulation is damaged**
  - **the charging device becomes unusually hot**
    NOTE:
    The production of a small amount of heat on the charging device and rechargeable battery pack is normal.
  - **the charging device is producing unusual noises such as loud humming or hissing**
  - **sparks are produced when plugging or unplugging**
  - **The production of smoke can be seen on the charging device or EPAC.**
- **Turn off the corresponding fuse in your electricity distribution box.**
  Remove the mains plug of your charging device from the socket.
  Contact your specialist bicycle dealer immediately.
- **Do not use the charging device in direct sunlight.**

NOTE:
Deep discharge will gradually destroy your rechargeable battery pack. Damage to the rechargeable battery pack resulting from deep discharge is caused by an operating error and is not covered by the warranty.

- **You should charge up your rechargeable battery pack for the first time not later than 2 months after purchasing your EPAC.**
- **After the first charge you should recharge the battery pack every two months at the latest.**
- **Charge the rechargeable battery pack up within the permitted ambient temperature range of -5°C to +50°C.**



A charging device
B Indicator light
C Plug of the charging cable
D Socket
E Mains plug
F Socket

1. Insert the mains plug of the charging device into the socket (F).
   The green indicator lamp goes on.
   The charge status is shown in the display.
   ⚠ **WARNING If the display light does not go on, the charging device might be damaged.**
   - **Remove the mains plug from the socket (F).**
   - **Do not use the charging device any more.**
   - **Contact your specialist bicycle dealer.**
2. Insert the plug of the charging cable into the socket (D) of the rechargeable battery pack.
   The rechargeable battery pack is now being charged up.
   The display goes off when the rechargeable battery pack is fully charged.
   NOTE:
   When the battery pack is charged up for the first time the charging time is considerably longer than the average charging time of 4 – 5 hours.
3. Remove the plug of the charging cable from the socket (D) on the rechargeable battery pack.
4. Remove the mains plug from the socket (F).

NOTE:
You can leave the rechargeable battery pack permanently connected to the charging device for as long as you do not use the EPAC. This increases the service life of the rechargeable battery pack, but also increases your electricity consumption.

8.9.9 Calibrating the electric drive

Calibrate the electric drive if the pedalling assistance no longer provides the desired power.

1. Place the EPAC on the ground.
2. Stand next to the EPAC.
3. Turn the lights off.
4. Turn the pedalling assistance to 0 (OFF) in the display.
5. Press the M button for 5 seconds until
   -0-0- is shown in the bottom line of the display.

The EPAC is calibrated.

9 Loading the EPAC

⚠ WARNING Danger from falls and accidents

Adding an extra load impairs the riding behaviour of your EPAC and the braking distance becomes longer. And if you overload your EPAC, it is possible that parts of it might even break or fail. All of this can lead to dangerous riding situations, falls and accidents.

- **You should load your EPAC in such a way that you always have enough room to move and can always operate your EPAC safely when it is loaded.**
  Adapt your riding to the more difficult riding behaviour of the EPAC.

- **Do not use your EPAC for transporting goods, but only as an item of sports equipment and for moving from one location to another.**

- **Never use your EPAC with a bicycle trailer.**

- **Do not transport any bulky luggage or other adults on a luggage rack (optional).**

- **Children should only be transported in child seats. You should only mount child seats on the appropriate luggage racks.**
  Please contact your specialist bicycle dealer to select and mount a child seat. Your specialist dealer will be pleased to advise you.

- **Transport your luggage only on suitable carrier systems.**

- **You should only use carrier systems which are approved for your EPAC, see section 2.4.2, What must you bear in mind when retrofitting accessories and carrying out conversions?**
  Please contact your specialist bicycle dealer to retrofit a carrier system. He or she will be pleased to advise you.

- **Do not exceed the maximum permitted loading weight for your loading system. Please see the documentation for your loading system for the maximum permitted loading weight.**

- **Do not exceed the maximum permitted loading weight for your EPAC (rider plus children and luggage).**

- **Load your EPAC in such a way that the luggage and carrier system never come into contact with the wheels, drive, chain or brakes.**

- **Load your EPAC in such a way that the luggage and carrier system never cover the lights or reflectors of your EPAC.**

How to determine the maximum permitted loading weight:

1. If you would like to transport a child on your EPAC:
   Weigh the child on a calibrated set of scales.
2. Weigh yourself wearing all of your cycling clothes and helmet on a calibrated set of scales. If you wish to use a bicycle rucksack while you are riding, stand on the scales with the loaded rucksack.
3. Weigh the luggage that you would like to transport on your luggage rack on a set of calibrated scales.
4. Adds together all of the weights. The total must not be more than 115 kg.
5. Reduce the weight of your luggage if the total is more than 115 kg.
6. Securing a child:
   Please secure your child as shown in the documentation for your child seat.
   If you have any questions, please contact your specialist bicycle dealer. He or she will be pleased to advise you.

   Loading the luggage rack (optional):
7. Place your luggage on the middle of your luggage rack.
8. Please mount and load your saddlebags, if you are using any, in accordance with the documentation for your saddlebags. If you have any questions, please contact your specialist bicycle dealer. He or she will be pleased to advise you.
9. Attach your luggage with suitable and stable holding systems (spring clamp, click system, tensioning straps, elastic belt straps or similar items).
10. Shake your EPAC vigorously after you have loaded it.
    The luggage and carrying system must be firmly attached and not become loose.
    If the luggage or carrier system are not firmly attached or become loose:
    fix the luggage or carrier system in place until it is firmly attached.

10 Riding the EPAC

⚠ WARNING Danger from falls and accidents
With your EPAC you can reach high speeds to which you may not be accustomed.

- **You should only use this EPAC if you can safely ride at high speeds and brake from such speeds.**
- **Always wear a helmet when riding your bike.**
- **Ride with foresight and defensively.**
- **Be ready to brake at all times.**
- **Do not ride after consuming alcohol.**
- **Ride in such a way that you have your EPAC under control at all times and can react correctly in the event of sudden dangerous situations.**
- **When wet, the brakes may not be as effective. The braking distance becomes longer.**
- **When riding, wear only suitable clothing that does not hinder the operation of the EPAC or your sight.**
- **Always wear tight-fitting legwear when riding. Loose clothing can become tangled in the EPAC and lead to serious falls.**
- **In the dark and with poor visibility, wear clothing with reflective stripes and switch on your lights.**
- **Note that some items of clothing and/or the use of a backpack can hinder your mobility.**

⚠ WARNING Danger from falls and accidents if the EPAC starts up unexpectedly

If you place your foot on the pedal and move the wheels slightly, the electric drive will start up. There is a danger that you will move off unintentionally. This is particularly dangerous at traffic lights, level crossings and on the edge of slopes, as well as at roads and paths where you do not have priority.

- **You should only put your foot on the pedal when you actually want to move off.**
- **Operate both of the brakes immediately beforehand and only release them when you actually want to move off.**

⚠ WARNING Danger from falls and accidents resulting from unexpected after-running

In the case of an incorrect engine management system your EPAC may suffer from after-running. Ride your EPAC carefully, comply with the servicing intervals and contact your specialist workshop immediately in the case of faults.

⚠ WARNING Danger from heavy falls and accidents
Amongst other things, your safety depends on your speed and the riding conditions. The faster you ride and the more unfavourable the riding conditions are, the greater is your risk.

- **Always adapt your speed to your riding skills and the riding conditions.**

- **Remember that roads and trails may be damaged and there may be concealed obstacles, edges, “sleeping policemen”, bumps in the road etc.**
  In such areas you should ride slowly and with particular care. If necessary, push or carry your EPAC.

⚠ WARNING Danger through trapping and shearing
Rotating wheels can injure hands and other parts of the body.

- **Keep your hands and other parts of the body away from rotating wheels!**

- **Please ensure that your child’s hands and other parts of their body cannot come into contact with the revolving wheels.**

⚠ CAUTION Danger of burns
When you are riding - particularly in the case of long downhill rides and frequent braking - it is possible that the brake discs will become so hot that they can cause burns if in contact with the skin. Do not touch the brake discs immediately after riding your EPAC.
Allow the brake discs to cool down for at least 5 minutes before touching them. In order to check the temperature, lightly tap with your bare finger very briefly on the brake discs. If these are hot, wait a few minutes and repeat this test until the brake discs have cooled down completely.

10.1 Switching on the electric drive

A Display
B Holder

1. Attach the display to the holder.
   NOTE:
   When you attach the display to the holder, the drive automatically becomes ready to operate.
2. Place the display at an angle of 45° in an anticlockwise direction on the holder.
3. Turn the display through an angle of 45° in a clockwise direction until you feel it lock in place.

10.2 Riding the EPAC

1. Hold the left-hand grip of the handlebars with your left hand and the right-hand grip with your right hand.
2. Press both brakes.
3. When riding, place your left foot on the left pedal and your right foot on the right pedal.
4. Sit on the saddle or ride standing up on the pedals.
5. Release both of the brakes.
6. Press down on the pedals.

10.3 Switching off the electric drive

1. Releasing the display from the holder: Turn the display through 45° in an anticlockwise direction and take it off the holder.
   NOTE:
   When you remove the display from the holder the operational readiness of the drive is automatically switched off.

11 What to do in the case of a fall or accident

⚠ WARNING
Danger of fire

If your EPAC falls over this may result in short circuits in the rechargeable battery pack and cause the rechargeable battery pack to catch fire.

- **After a fall or accident you should leave your EPAC outside for an hour away from combustible materials.**
- **Move the back of your finger briefly and carefully along the down tube. If you notice any unusual warmth, leave your EPAC where it is. Under no circumstances should you continue to use your EPAC. Transport your EPAC to your specialist bicycle dealer as soon as the down tube has cooled down.**
- **If flames or smoke come out of the down tube, leave your EPAC where it is. Put out the fire with fire extinguishing equipment, if available. If you do not have any extinguishing equipment available, wait until the fire has become extinguished and all of the parts of your EPAC have cooled down. Then transport your EPAC without delay to a specialist bicycle dealer.**
- **If there is a danger that the fire will spread to neighbouring items, call the fire brigade immediately.**
- **You should only use your EPAC again when it has been checked by a specialist workshop and repaired if necessary.**

⚠ WARNING Danger from falls and accidents
If you have a fall or accident with your EPAC, parts of it which are important for safety may be damaged. This can lead to dangerous riding situations, falls, accidents and material damage.

- **Contact your specialist bicycle dealer immediately after an accident or fall.**
- **You should only use your EPAC again when it has been properly repaired by the specialist bicycle dealer.**

After a fall it is essential to have all of the parts of your EPAC which have hit a hard surface, such as the

- Handlebars
- Handlebar stem
- and crank

replaced.

All other parts must be inspected by your dealer and replaced, if necessary.

NOTE:
If you have any questions after falls and accidents, you can also contact a bicycle specialist. In Germany you can obtain corresponding contact addresses from your local Chamber of Commerce and Industry (IHK).

12 Parking the EPAC safely

⚠ WARNING Danger of injury from your EPAC falling over
An EPAC that is supported by its kickstand or leaning against a house wall or garden fence, for example, can fall over when subjected to a small force. This may cause injury to individuals or animals and damage other objects.

- **You should only park your EPAC where it does not represent an obstacle or nuisance to anyone.**
- **Keep children and animals away from your parked EPAC.**
- **Please do not park your EPAC next to items which are easily damaged, such as cars and similar items.**

If your bicycle has a kickstand:

1. Stop your EPAC on a flat and firm surface.
2. Turn off the electric drive by removing the display. (see *section 10.3 ,Switching off the electric drive*).
3. With the EPAC stationary, use your right foot to fold the kickstand down until it clearly locks in place.
4. Turn the handlebars so that they point slightly to the left.
5. Lean your EPAC carefully on its left side until it is in a stable position.
6. Check the stability of your EPAC:
   - Hold your EPAC lightly with one hand by the handlebars or saddle.
   - Push the saddle of the EPAC lightly with the other hand in all directions. Look for another place to park your EPAC if it could easily fall over.

If your bicycle does not have a kickstand:

1. Stop your EPAC on a flat and firm surface.
2. Turn off the electric drive by removing the display. (see *section 10.3 ,Switching off the electric drive*).
3. Dismount on the left.
4. Lean your EPAC with the back wheel or with the saddle against a firm object.
5. Turn the handlebars to the side to which you have tilted your EPAC.

NOTE:
If there is no suitable object available, you can also carefully place your EPAC on the ground.

13 Transporting the EPAC

⚠ WARNING Danger of injury through shearing and trapping in the back wheel

If you load your EPAC with the motor switched on, this may start up unintentionally if the pedals are touched. The rotating rear wheel may then cause serious injuries. When you then put down the EPAC, this may result in uncontrolled movements.
You should therefore remove the display of the electric control unit before transporting the EPAC, see *section 10.3, Switching off the electric drive*.

⚠ WARNING Danger of fire

In strong sunlight the interior of a car can heat up to very high temperatures. High temperatures can result in internal short-circuits in the rechargeable battery pack and cause the rechargeable battery pack to catch fire.
You should only park your vehicle in a shady place with an ambient temperature of less than 35°C.

- **If flames or smoke come out of the down tube, leave your EPAC where it is. Put out the fire with fire extinguishing equipment, if available.**
- **If there is a danger that the fire will spread to neighbouring items, call the fire brigade immediately.**

⚠ WARNING Danger from heavy falls and accidents
The use of bicycle carriers may damage safety-relevant parts of your EPAC. The failure of these parts can lead to dangerous riding situations, falls, accidents and material damage.

- **Transport this EPAC only inside your car.**
- **No other objects may be placed on this EPAC during transport.**
- **This EPAC must not be clamped into car transport systems (roof racks, rear or interior carrying devices etc.**

13.1 Assembling and dismantling the front wheel

In order to transport the EPAC in your car you can dismantle the front wheel.

⚠ WARNING Danger from falls and accidents
If the wheels are incorrectly mounted this may result in dangerous riding situations, falls and accidents. Check that the wheel is correctly mounted before you use your EPAC again.

- **Check that the front wheel is positioned in the centre of the front wheel fork.**
- **Shake the two wheels vigorously at right angles to the direction of travel.**
  - **The wheels must not move in their mounting.**
  - **No cracking or grinding noises should be heard.**
- **Check whether the quick-release lever or thru axle is correctly closed, see *section 8.4 Quick-release axles, thru axle.***

⚠ WARNING
Danger of burns
After long downhill rides it is possible that the brake discs have become very hot.

- **Do not touch the brake discs immediately after a downhill ride.**
- **Allow the brake discs to cool down for at least 5 minutes before touching them.**
- **In order to check the temperature, tap the brake discs briefly with your bare finger. If these are hot, wait a few minutes and repeat this test until the brake discs have cooled down completely.**

NOTE:
Your EPAC has a disc brake. After dismantling the wheel you should use the enclosed transport lock when transporting the EPAC. Remove this only immediately before installing the wheels again.

13.1.1. Dismantling the front wheel

1. If your EPAC has been retrofitted with a hub dynamo:
   release the plug-in connection between the dynamo and cables.
2. In the case of clamping with the quick-release axle (E-Hybrid Street and Trail 4000):
   - Open the quick-release axle
     See *section 8.4.1, Opening and closing the quick-release axle on the front wheel.*
   - Unscrew the lock nut until it is just still on the axle.
3. In the case of clamping with the thru axle (E-Hybrid Trail 9000):
   - Open the quick-release lever.
     See *section 8.4.2, Opening and closing the thru axle*.
   - Turn the thru axle in an anticlockwise direction until it is released from the thread in the fork rod and then pull the axle completely out of the hub.
4. Pick up your EPAC with the handlebars and pull the front wheel out of the fork ends of the front-wheel fork.

5. Insert the enclosed transport lock for your disc brake between the brake pistons.
   NOTE:
   Under no circumstances may the hydraulic brakes be operated after the wheel has been removed.
   You should use the enclosed transport locks. Remove these before re-installing the front

6. Place your EPAC carefully on the ground with the fork ends.

Installing the front wheel

1. Remove the transport lock from the brake pistons

2. Pick up the EPAC by the handlebars.
3. Position the hub of the front wheel under the fork ends of the front-wheel fork.

4. Insert the wheel so that the brake disc slides smoothly between the brake pads.

5. Lower the fork carefully until the axle is flush with the stop of the fork ends on the left and right.
   - In the case of clamping with a quick-release axle (E-Hybrid Street and Trail 4000): Close the quick-release axle in accordance with *section 8.4.1, Opening and closing the quick-release axle on the front wheel.*
   - In the case of the thru axle (E-Hybrid Trail 9000):

     Push the thru axle from the left through the fork dropout and the hub.

     Clamp the front wheel hub.
     See *section 8.4.2, Opening and closing the thru axle*.
6. If your EPAC has been retrofitted with a hub dynamo:
   Connect the plug-in connection between the hub dynamo and cables.
7. Operate the front wheel brake several times with the EPAC stationary after you have reinstalled the front wheel.
8. Lift up the EPAC by the handlebars and turn the front wheel by hand. If a brake block is in contact with the wheel rim, this can indicate incorrect mounting of the hub in the fork dropouts. In this case you should open the quick-release lever and shake the front wheel lightly to and fro (at right angles to the direction of travel). Repeat the installation

from *point 5.* If there is no improvement, please contact your specialist bicycle dealer immediately.

9. If your EPAC has been retrofitted with a hub dynamo:
check the function of the lights.
See *section 6.9, Checking the lights (optional)*.

13.2 Installing and dismantling the saddle post with the saddle

In order to make it easier to transport your EPAC you can dismantle the saddle post and the saddle. The saddle post is fastened with a clamp in the seat tube of the frame. The clamping is performed by means of a quick-release axle and knurled nut.

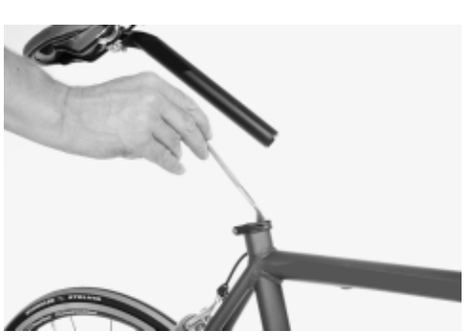
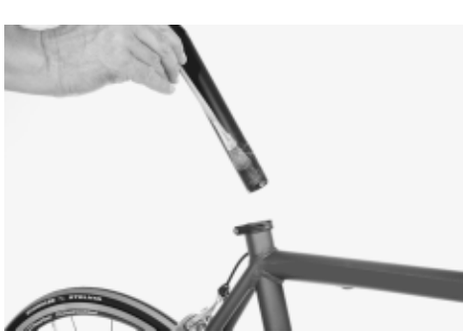
13.2.1 Dismantling the saddle post

1. Open the seat clamp on the quick-release lever.
See *section 8.4.3, Opening and closing the quick-release axle on the saddle post clamp*.

2. Pull the saddle together with the saddle post out of the frame.

13.2.2 Installing the saddle post

1. If the insertion area is not greased:
Grease the insertion area of the saddle post.

Push the saddle with saddle post into the saddle tube of the frame until the required saddle height is obtained. In this position the lower end of the saddle post must be located at least 10 cm below the upper edge of the seat tube.

NOTE:
Do not rely on the marking on the saddle post.
Check the correct insertion depth as follows:

- Place a finger tip against the saddle post in the installed position immediately above the clamping bolt.

- Leave your finger in this position and pull the saddle post out of the saddle tube.

- Hold the saddle post at the side next to the seat tube so that your fingertip is again located directly above the clamp. In this position the lower end of the saddle post must be at least 10 cm below the upper edge of the seat tube.

2. Turn the saddle so that the saddle tip is pointing in the direction of travel.
3. Ensure that the clamp is flush with the frame and that the slots in the saddle tube and clamp are aligned.
4. Close the quick-release lever.
   See *section 8.4.3, Opening and closing the quick-release axle on the saddle post clamp.*

NOTE:
Mark the correct position of the saddle post with adhesive tape.

5. Check the saddle post.
   See *section 6.2, Inspecting the saddle and saddle post*.
   ⚠ WARNING Danger from falls and accidents
   An incorrectly mounted saddle post may result in dangerous riding situations, falls and accidents.

14 Maintaining the EPAC

⚠ WARNING
Danger of injuries to fingers and arms, danger of accidents

The test measures may cause the EPAC to move off unexpectedly.
Remove the display before carrying out all work (see *section 10.3, Switching off the electric drive*).

⚠ WARNING Danger from falls and accidents
Electric hazard when working on the electrical equipment

Incorrectly performed maintenance can lead to dangerous riding situations, falls and accidents.

- **You should only carry out the maintenance work on your EPAC which is permitted according to this section.**
- **Have all other maintenance work carried out by a specialist workshop for bicycles.**

⚠ WARNING Danger of injury from shearing and trapping in the back wheel
When the EPAC is in the standby position, the electric drive may start up unintentionally. The rotating rear wheel may then cause serious injuries. If you put down the EPAC, this may result in uncontrolled movements as a result of which you might also be injured.
Make sure that the EPAC is not in the standby position before starting any work on the EPAC, see *section 10.3, Switching off the electric drive*.

14.1 Your serv

Work	Interval
Cleaning the EPAC See *section 14.2, How to clean and care for your EPAC*	· whenever you have ridden the EPAC on muddy or dirty surfaces · every 200 km at the latest
Adjusting the air pressure of the suspension fork See *section 7.3.1, Adjusting the air pressure*	every 500 km or 3 months after any change to the overall weight by 10 kg
Cleaning and greasing the chain See *section 14.2, How to clean and care for your EPAC, point 7*	· after every ride in the wet · whenever you have cleaned your EPAC with water · after every prolonged ride on a sandy surface · every 200 km at the latest

14.2 How to clean and care for your EPAC

⚠ WARNING
Danger of injury
Before carrying out any work on your EPAC, make sure that it is not in the standby position in accordance with *section 10.3, Switching off the electric drive*.

⚠ WARNING Danger from falls and accidents
Insufficient cleaning and care can lead to dangerous riding situations, falls and accidents.
You should care for your EPAC in accordance with the following instructions.

⚠ WARNING Danger from falls and accidents
Corrosion - which can also affect non-rusting parts - may damage the safety components of your EPAC so severely that they break when you are riding it. This may result in serious falls.

Corrosion can result, amongst other things,
from salt, e.g. salty air near the coast or the spreading of salt on the roads in the winter
through a corrosive atmosphere, e.g. on industrial sites
through sweat.

- **Protect your EPAC with spray wax or a similar preserving agent against all contacts with corrosive substances.**
- **Clean your EPAC after all contacts with corrosive substances and protect it again in accordance with the following description.**
- **Do not use any steam jet/high-pressure cleaner for wet cleaning. The strong waterjet may damage your EPAC or cause a short circuit (danger of fire).**

NOTE:
Taking care of your EPAC will increase its service life and that of its components.

- Clean and service your EPAC at regular intervals.
- Use a gentle water jet or a bucket of water and sponge to clean your EPAC.
- Use only clean fresh or desalinated water. Do not use any saltwater e.g. (seawater)

NOTE:
With many cleansers and light soiling it is often sufficient to spray on the cleanser and to rinse it off again after the prescribed waiting time.
Stubborn soiling can be loosened e.g. with a radiator paintbrush or sponge after the waiting time before rinsing.

NOTE:
Cleansers, lubricants and preserving agents are chemical products. Some of these agents can damage your EPAC.

- Use only products that are expressly suitable for bikes.
- Ensure that this agent does not attack paintwork or rubber, plastic or metal parts etc. Contact your specialist bicycle dealer for further advice.
- Follow the manufacturers' instructions.

1. Switch off the standby readiness of your EPAC:
   Remove the display.
   See *section 10, Riding the EPAC, point 1*.
2. Remove coarse soiling such as earth, stones, sand, etc. using a gentle water spray.
2. Allow the EPAC to dry for a while.
3. Spray the entire EPAC with a suitable cleansing agent.
4. Use a water jet to rinse down the entire EPAC. You can also carry out additional wet

cleaning with the help of a sponge or cloth.

5. Allow the EPAC to dry.

6. Cleaning and greasing the chain:

   - Rotate the crank slowly against the direction of the drive. The rear wheel must not revolve.
   - Pour a small amount of a suitable chain cleansing agent onto a clean, lint-free cotton cloth and wipe off the chain.
   - Repeat this procedure as often as necessary with a clean part of the cotton cloth until the chain is clean.
   - Allow the cleansing agent to evaporate for approximately 1 hour.
     NOTE:
     If there is still some cleansing agent between the links of the chain, the new grease is immediately decomposed and therefore has no effect.
   - Apply a suitable grease for bicycle chains sparingly on to the chain links.
     ⚠ WARNING Danger from falls and accidents
     If you use too much or inappropriate grease, this may drip on to the brake disc and smear it. This may cause the braking effect to deteriorate significantly.

     Remove any excess lubricant from the chain using a clean, dry and lint-free cotton cloth.

     Clean the wheel rim and brake disc with a suitable degreasing agent. Consulting your specialist bicycle dealer
     NOTE:
     Lubricant for motorbike chains will clog your bike chain and drive components. Use only lubricants expressly approved for use on bike chains.

6. Clean any remaining heavily soiled parts by hand using a clean and lint-free cotton cloth and a suitable cleansing agent.

7. Spray the entire EPAC with a suitable spray wax or similar preserving agent.
   ⚠ WARNING Danger from falls and accidents
   Spray wax or other preserving agents on the brake discs can cause the braking effect to deteriorate significantly.
   Clean the brake discs with a suitable degreasing agent. Consult your specialist bicycle dealer.
   These parts must not be treated with preserving agents.

   - **Brake blocks**
   - **Brake discs**
   - **Grips, brake and gear levers**
   - **Saddle**
   - **Tyre**

8. Polish your EPAC after the prescribed waiting time with a clean, lint-free cotton cloth.

9. Clean the brake discs by hand using a clean, dry, lint-free cotton cloth and a suitable degreasing agent.

14.3 Workshop service

⚠ WARNING Danger from falls and accidents
Servicing which is not/incorrectly carried out, as well as damage from falls or accidents which is not repaired, may lead to dangerous riding situations, falls and accidents.

- Take your EPAC on time to the prescribed servicing appointments at a specialist workshop for bicycles. Only in this way can worn parts and damage be reliably detected and repaired.
- Ask your specialist workshop to show you their confirmation of participation in a GHOST training course for your EPAC to prove that they are qualified to carry out t

Work	**Interval**
First inspection	after 500 km or 6 months at the latest
Inspection of the brake linings, brake discs, chain	every 500 km
Regular inspections	every 1000 km or once a year

15 What to do in the case of faults

⚠ WARNING
Danger from falls and accidents resulting from unexpected after-running

If your engine management system is faulty, your EPAC may continue running.

- **Be ready to brake at all times.**
- **Drive defensively, comply with all of the servicing intervals and contact your specialist workshop immediately in the case of faults.**
- **You should only use this EPAC if you can safely ride at high speeds and brake from such speeds.**

⚠ WARNING
Danger from heavy falls and accidents
Incorrectly performed troubleshooting may result in dangerous riding situations, falls and accidents.

- **You should only carry out work to your EPAC which you are permitted to perform according to the following table.**
  Contact a specialist workshop for bicycles if the work that you have carried out is not successful.
- **Have all other work carried out by a specialist workshop for bicycles.**
- **You should contact your specialist bicycle dealer immediately if the riding behaviour of your EPAC does not appear to be normal, if you can hear unusual noises or if you notice any malfunctions which are not listed in the following table.**

⚠ WARNING
Danger of injury from shearing and trapping in the back wheel
When the EPAC is in the standby position, the electric drive may start up unintentionally. The rotating rear wheel may then cause serious injuries. If you put down the EPAC, this may result in uncontrolled movements as a result of which you might also be injured.
Make sure that the EPAC is not in the standby position before starting any work on the EPAC, see *section 10.3, Switching off the electric drive*.

15.1 Gear shift, drive

Malfunction	Possible cause(s)	Remedy
Gears do not change or do not change smoothly	Shift lever not actuated correctly	Actuate the lever again
	Shift mechanism maladjusted	Contact your specialist bicycle dealer.
	· In the case of steep inclinations, excessive pressure on the pedal · and/or pedalling movement too slow	Repeat the gear shifting procedure on flat terrain. Changing gear while stationary: · Lift the rear wheel. · Turn the crank in the drive direction until the desired gear is engaged.
Drive blocks during or after gear shifting	Chain jamming	· Leave the EPAC where it is. · Turn off the standby mode in accordance with *section 10.3, Switching off the electric drive* · Actuate the gear lever in the opposite direction. · Lift the rear wheel. · If this is possible without force: turn the crank in the opposite direction to the drive. *NOTE:* *Under no circumstances should you apply force if the crank cannot be easily turned .* *You should contact your specialist workshop for bicycles immediately.*
Unusual noise such as cracking, loud grinding and/or banging	Drive/gearing components damaged	Contact your specialist bicycle dealer immediately.
Irregular resistance during the pedal movements	Drive/gearing components damaged	

Malfunction	Possible cause(s)	Remedy
Chain jumped off sprocket	· Incorrect operation of the gearshift · Maladjusted or damaged gear shift mechanism	· Leave the EPAC where it is. · Turn off the standby mode in accordance with *section 10.3, Switching off the electric drive* · Lift the chain onto the next sprocket by hand, · Lift the rear wheel. · If this is possible without force: turn the crank in the direction of the drive. *NOTE:* *Under no circumstances should you apply force if the crank cannot be turned easily or if you do not have the strength to lift the back wheel.* *Contact your specialist workshop immediately.*
Chain jumped off during or after gear shifting	· Incorrect operation of the gearshift · Maladjusted or damaged gear shift mechanism	· Leave the EPAC where it is. · Turn off the standby mode in accordance with *section 10.3, Switching off the electric drive* · Actuate the gear lever in the opposite direction. · Lift the chain onto the next sprocket by hand, · Lift the rear wheel. · If this is possible without force: turn the crank in the direction of the drive. *NOTE:* *Under no circumstances should you apply force if the crank cannot be easily turned .* *You should contact your specialist workshop for bicycles immediately.*
Chain jumps off repeatedly	· Repeated incorrect operation of the gearshift · Maladjusted or damaged gear shift mechanism	Operate the gearshift correctly, see *section 8.2, Gears.* Contact your specialist workshop immediately if the fault occurs when you change gear correctly.

15.2 Brakes

⚠ WARNING Danger from falls and accidents
The brakes of your EPAC are some of the most important components for your riding safety. Failing brakes always lead to dangerous riding situations, falls and accidents. A brake malfunction is a serious danger to safety.

- **Contact your specialist bicycle dealer immediately if you notice the slightest malfunction or a deterioration in the braking effect.**
- **You should only use your EPAC again when it has been properly repaired by the specialist bicycle dealer.**

Malfunction	Possible cause(s)	Remedy
Brakes do not work	Brakes not correctly installed	Contact your specialist bicycle dealer immediately.
	Brakes damaged	Contact your specialist bicycle dealer immediately.
Decreasing braking effect, brake levers can be pulled too far	Brake linings worn	Have the brake linings replaced immediately in an approved workshop.
	With hydraulic brakes: Brake system leaking	Contact your specialist bicycle dealer immediately.
The brake drags	The brake disc is damaged	Contact your specialist bicycle dealer immediately.
	The wheel is not straight	Front wheel: Install your front wheel correctly (*see section 13.1, Assembling and dismantling the front wheel*
		Rear wheel: Please contact your specialist bicycle dealer.

15.3 Frame, Saddle Post and Suspension

⚠ WARNING Danger from falls and accidents
Defects and damage to the frame and suspension may lead to dangerous riding situations, falls, accidents and material damage.

- **Contact your specialist bicycle dealer immediately if you notice the slightest malfunction.**
- **You should only use your EPAC again when it has been properly repaired by the specialist bicycle dealer.**

Malfunction	Possible cause(s)	Remedy
Noises: Cracking, banging, grinding, etc.	Frame, saddle post and/or suspension damaged	Contact your specialist bicycle dealer immediately.
Saddle post slips into the frame or twists	Clamp too loose	Check and increase the clamping force (see *section 13.2.2*)
	Saddle post diameter is too small	Assembly of a saddle post with correct diameter
Improper suspension function	Suspension not correctly adjusted	Adjust correctly according to the component user manual supplied with the bike.
	The suspension is blocked	Release the blockage (see *section 7.3.2*).
Improper suspension function despite correct adjustment	Suspension damaged	Contact your specialist bicycle dealer immediately.
The suspension fork cannot be locked	Actuation mechanism broken	Please contact your specialist bicycle dealer.

15.4 Luggage rack and lights

⚠ WARNING Danger from falls and accidents
Defects and damage to the luggage rack and lights may lead to dangerous riding situations, falls, accidents and material damage.

- **Contact your specialist bicycle dealer immediately if you notice the slightest malfunction.**
- **You should only use your EPAC again when it has been properly repaired by the specialist bicycle dealer.**

Malfunction	Possible cause(s)	Remedy
Noises: Cracking, banging, grinding, etc.	Mudguard or luggage rack parts loose	Contact your specialist bicycle dealer immediately.
Lights partially or completely without function	Light fixtures (bulbs, LEDs) burned out	Replace the bulb(s) Contact your specialist bicycle dealer.
	Cables damaged	Contact your specialist bicycle dealer immediately.
	Dynamo defective	

15.5 Wheels and tyres

⚠ WARNING

Danger from falls and accidents
Defects and damage to the wheels and tyres may lead to dangerous riding situations, falls, accidents and material damage.

- **Contact your specialist bicycle dealer immediately if you notice the slightest malfunction.**
- **You should only use your EPAC again when it has been properly repaired by the specialist bicycle dealer.**

NOTE:
Your rear wheel has a self-repairing tube which immediately seals holes caused by small items such as pieces of glass, small stones, thorns or small nails.
The tube is not able to seal large holes. In this case you could not repair the problem yourself if you installed a spare tube. Due to the size of the cut this would expand out of the tyre while being pumped up and burst after a short time. In this case you must transport your EPAC to the nearest specialist bicycle dealer to have the tyres completely replaced.

Malfunction	Possible cause(s)	Remedy
Wheels “jump”	· Tyre damaged · Spoke broken	Contact your specialist bicycle dealer immediately.
Noises: Cracking, banging, grinding, etc.	Foreign matter has become trapped in the wheel	Remove the foreign matter. Use your EPAC very carefully after this. Have your EPAC checked in an approved workshop for possible consequential damage.
	Damage to the wheel	Contact your specialist bicycle dealer immediately.
“Spongy” riding behaviour	Tyre pressure too low	Increase the air pressure (see *section 6.1.2*). If the same riding behaviour occurs again fairly shortly thereafter, the tyre has a slow puncture (see next line).
· Increasingly “spongy” riding behaviour · Very unusual wheel rolling behaviour (you feel every small stone)	Flat tyre	Front tyre flat: Replace the inner tube, as well as the tyre and tube protector if necessary, see *section 15.5.1.* Rear tyre flat: Take your EPAC to a specialist workshop without delay. The EPAC must not be used until then. **⚠ WARNUNG** **Danger of injury through falls, accidents and damage** **The rear wheel of your EPAC may only be dismantled and installed by specialist workshops.** **When the work is carried out at your specialist workshop you should insist on the installation of a self-repairing inner tube.**

15.5.1 Front tyre flat

⚠ WARNING Danger from falls and accidents
Mistakes during the repair of the front wheel can result in dangerous riding behaviour.
You should only carry out these repairs yourself if you have the necessary tools available.

In order to repair a flat tyre you need the following equipment/tools:

- 2 tyre irons
- Inner tube (new) with automatic valve for tyre size 26 x 2.1
- New tyre, if necessary
- Air pump with pump head suitable for the valve

1. Dismantle the front wheel.
   See *section 13.1.1, Dismantling the front wheel*.
2. Unscrew the valve nut as far as it will go.
3. Press the valve with your finger until all of the residual air has escaped.
4. Remove the nut from the valve base.
5. Lift the tyre off the rim using the tyre irons. Begin on the side opposite the valve.
6. Pull the inner tube out of the tyre. Note the direction of the inner tube in the tyre.
7. Look for the cause of the flat tyre:
   - Pump up the damaged inner tube.
   - Search for the point where the air is escaping.
   - When you have found the leak:
     turn the inner tube in on itself so that the valve is pointing inwards.
8. If the leak is on the inside:
   - Check whether the tube protector is correctly fitted:
     all spoke holes must be covered.
     If this is not the case, please contact your specialist bicycle dealer.
   - Check the rim for damage (sharp edges, chippings etc).
     If you find such damage, please contact your specialist bicycle dealer.
   - Check whether there are one or two small holes next to each other.
     NOTE:
     Two small holes indicate a puncture (snakebite). This is a frequent cause when riding over sharp-edged obstacles with too little air pressure.
     If the rim is not damaged: install a new inner tube.
9. If the leak is on the outside:
   - Hold the inner tube next to the rim with a tyre, as it was mounted. Check the area of the tyre where the hole is located in the inner tube. Often there is a thorn, a small stone or glass splinter in the tyre.

⚠ CAUTION Danger of cuts
If you feel the inside of the tyre with your thumb or finger, you might cut yourself on sharp-edged objects if these are still in the tyre.

Avoid moving your thumb and fingers quickly along the inside walls of the tyre.

You should feel the walls of the tyre with extreme caution.

10. Remove the item causing the problem carefully with your fingernail, penknife or similar item. If the tyre has been damaged or cut over a large area, it also has to be renewed.

If a tyre change is needed:

1. Remove the old tyre completely from the rim.
2. Mount the new tyre with one side on the rim. Make sure that the arrow indicating the direction of movement on the tyre is pointing in the direction of rotation when the EPAC is ridden.

If no tyre change is needed:

1. Pump up the new inner tube somewhat, so that it takes on its final shape.
2. Insert the valve through the valve hole in the rim. The valve must be pointing towards the middle of the wheel.
3. Now press the side of the tyre which is still outside the rim into the tube protector at the level of the valve.
4. Press the external sides of the tyre into the tube protector at the same time around the circumference. Start at the valve.
5. Opposite the valve the force required to press the tyre in may be greater. Use the tyre irons for this. Make sure that you do not damage the inner tube.
6. Pump up the inner tube slightly.
7. Move the tyre to and fro around the circumference at right angles to the direction of travel. Ensure that the tyre is positioned evenly on the rim and that the inner tube is not visible at any point.
8. Pump the tyre up to the specified air pressure of 2.0 - 4.0 bar.
9. Mount the front wheel in accordance with *section 6, Installing the front wheel*.
10. Check the tyres.
    See *section 6.1.2, Checking the tyres*.

15.6 Electric drive

15.6.1 Gene

Malfunction	Possible cause(s)	Remedy
No display	Display not correctly attached	Take the display off and attach it again (see *section 10, Riding the EPAC, point 1*)
	Rechargeable battery pack flat	Charge the rechargeable battery pack (see *section 8.5.1, Charging the rechargeable battery pack)*
	Rechargeable battery pack broken	Please contact your specialist bicycle dealer.
	Cables damaged	Please contact your specialist bicycle dealer.
Rechargeable battery pack cannot be charged up	Rechargeable battery pack broken	Please contact your specialist bicycle dealer.
	Charging device broken	Please contact your specialist bicycle dealer.
Drive not working	Fault in the control system	Carry out a fault diagnosis in accordance with *section 15.6.2* .
	Rechargeable battery pack flat	Charge the rechargeable battery pack (see *section 8.5.1, Charging the rechargeable battery pack)*
	Rechargeable battery pack broken	Please contact your specialist bicycle dealer.
	Cables damaged	Please contact your specialist bicycle dealer.
	Speed is over 25 km/h	The drive is designed to switch off at speeds over 25 km/h.
Drive does not supply enough power	Control system fault	Calibrate the drive in accordance with *section 8.5.2.*
	Rechargeable battery pack almost flat	Charge the rechargeable battery pack (see *section 8.5.1, Charging the rechargeable battery pack)*
	Motor temperature too high due to excessive load	Stop at an appropriate location and wait until the motor has cooled down. Otherwise the power of the drive is reduced until the motor temperature has gone down of its own accord.

Malfunction	Possible cause(s)	Remedy
The drive does not switch off completely although the pedalling movement is stopped.	The axle nuts on the rear wheel have been loosened and not re-tightened correctly. This affects the measurement system of the drive, which is required to determine the degree of assistance required, in a negative way. A faulty control system is the consequence. *NOTE:* *Only your specialist bicycle dealer is allowed to carry out work on the rear wheel!*	Calibrate the drive temporarily in accordance with *section 8.5.2.* Then take your EPAC to your specialist bicycle dealer without delay.
Drive starts unintentionally	If you place your foot on the pedal and move the wheels slightly, the electric drive will start up.	· You should only put your foot on the pedal when you actually want to move off. · Always operate both brakes in a stationary position and only release them when you actually want to move off.
Drive reacts after a delay	Measurement system of the drive not calibrated	Calibrate the drive in accordance with *section 8.5.2.*
Drive does not run smoothly	Measurement system of the drive not calibrated	Calibrate the drive in accordance with *section 8.5.2.*

15.6.2. Diagnosis messages

If a code number (E....) is displayed without a tool symbol, you may repair this yourself if the code number is listed below.

NOTE:
If the code number displayed is not listed here, or if the stated measures do not rectify the problem, please contact a specialist workshop immediatel

Message	Diagnosis	Measures
E01	Rechargeable battery pack is flat.	Charge the rechargeable battery pack.
E04	EPAC is connected to the charging device.	Disconnect the charging device from the EPAC.
E05	Poor connection to the motor	Turn the pedalling assistance on again.
E06	Short circuit in the lights	Please contact your specialist bicycle dealer immediately.
E07	Temperature of the motor is outside the temperature limits.	Stop at an appropriate location and wait until the motor has cooled down. Otherwise the power of the drive is reduced until the motor temperature has gone down of its own accord.
E14	Display is not recognised.	The display has to be readjusted. Please contact your specialist bicycle dealer.
E16	Continuous deflection of the force sensor	Keep the light button pressed down for 5 sections for calibration.
E19	Temperature of the rechargeable battery pack is outside the temperature limits.	Wait until the rechargeable battery pack is within the temperature limits. Charging then continues automatically.
E20	Servicing required	Please contact your specialist bicycle dealer immediately.
E21	Motor current regulator	The assistance is automatically readjusted due to excessive load.
E22	Problems during charging	Switch the lights on and off and wait for 10 seconds. Connect the charging device. If this display is shown repeatedly, please contact your specialist bicycle dealer.
E23	Serial number of the motor not correct	The code of the rechargeable battery pack and control unit do not match. Please contact your specialist bicycle dealer.
E30	No communication with the torque sensor	Turn the pedalling assistance off and on again.
E32	Battery electronics too hot	Allow the rechargeable battery pack to cool down and then switch the assistance on again.
E34	The control unit on the handlebars does not support any accessories	Please contact your specialist bicycle dealer immediately.

E99	Software error	Please contact your specialist bicycle dealer immediately.

16 Taking the EPAC out of operation

NOTE:
The incorrect storage of your EPAC can damage the bearing, tyres and rechargeable battery pack and promote corrosion. Store your EPAC in accordance with the following instructions if you are not going to use your EPAC for more than 2 months.
The ambient temperature at the storage location must be between –10°C and + 35°C.

If you take your EPAC out of service for more than 2 months, you should charge up the rechargeable battery pack every 2 months in accordance with section 8.5.1, Charging the rechargeable battery pack.

If you are not able to charge up the battery pack every two months, you can increase the storage time without charging to 6 months. For this, a fuse on the rechargeable battery pack has to be removed.

1. Fully charge the rechargeable battery pack, see *section 8.5.1, Charging the rechargeable battery pack*.
2. Ask your specialist bicycle dealer to remove the fuse from the rechargeable battery pack.
3. Clean and service your EPAC as described in *section 14.2, How to clean and care for your EPAC .*
4. Charge the rechargeable battery pack up.
   See *section 8.5.1, Charging the rechargeable battery pack*.
5. Store your EPAC only in dry rooms where it is not exposed to dust.
6. Use suitable bike stands (e.g. tripod).
   Consult your specialist bicycle dealer on this.
7. If your EPAC is standing with one or both wheels on the floor:
   - Lift your EPAC every 2-3 weeks and turn the wheels a few rotations by hand.
   - Move the handlebars back and forth a few times.
   - Turn the crank by hand a few revolutions in the opposite direction to the drive.
8. Before you put the EPAC back into service:
   - Have your specialist bicycle dealer reinsert the fuse before you use the EPAC again.
   - Charge up the rechargeable battery pack completely.
   - Perform the checks in accordance with section *6, Before Every Use*.

17 Disposing of the EPAC

Like all electrical and electronic equipment, your EPAC contains substances which are harmful to the environment and human health, as well as materials which can be reused and recycled. In the European Economic Area (EEA) you are therefore obliged to keep your EPAC separate from the domestic waste and make use of a return and collection system.

Dispose of your EPAC at a local authority collection point. Detailed information on the correct disposal of your EPAC can be obtained from your local authority or your specialist bicycle dealer.

Tyres and inner tubes can be disposed of in the domestic waste.

18 Appendix

18.1 Warranty

The legally prescribed warranty period of two years applies in all cases to your EPAC. If a defect should occur to your EPAC within this period, please contact the specialist bicycle dealer where you bought your EPAC.

18.2 Guarantee

In addition to the statutory warranty, the firm GHOST-Bikes provides a durability guarantee of five years, provided that you - as the end-customer - complete the guarantee card accompanying your EPAC and sends it to the firm GHOST-Bikes. Alternatively, you can complete an online registration on the GHOST website. The guarantee period begins with the purchase of the EPAC by you as the end-customer from an authorised dealer. If the guarantee card is not returned to the firm GHOST-Bikes or the EPAC is not registered online, no guarantee will apply. This guarantee does not infringe your warranty entitlements.

The guarantee applies only to the frame construction and not to the paintwork and decoration.

The guarantee does not cover:

- faults and damage attributable to a failure to observe the instructions and tips given in the user manual.
- faults and damage attributable to force majeure, accident, improper use, incorrectly performed repairs, lack of maintenance and care or to wear and tear.
- faults and damage attributable to original spare parts not being used when replacing parts.
- changes to the product without the prior agreement of the firm GHOST-Bikes, insofar as defects and damage are attributable to these.

In the event of a complaint within the above guarantee period but outside the statutory warranty period, only the defective frame will be repaired or replaced. Costs for any necessary modification of components or the shipping of a frame within the stated period will not be assumed or refunded. The frames concerned therefore have to be dismantled and sent carriage paid to the firm GHOST-Bikes. In cases where the frame is replaced within the guarantee period, the guarantee period begins again for the new frame from the time of replacement.

Should a frame of the same type no longer be available if it becomes necessary to replace a frame, GHOST-Bikes reserves the right to supply an alternative frame which may differ in form and colour from the original frame, but which is of an equal or higher quality.

The warranty entitlements continue to apply alongside this guarantee.

Additional guarantee on the electric drive

A two-year guarantee is provided on the electric parts of your EPAC (display, monitor and rechargeable battery pack). However, within the first two years of the purchase of your new E-bike you have the opportunity to extend the guarantee period by three years to a total of five years.

The guarantee does not cover:

- faults and damage attributable to a failure to observe the instructions and tips given in the user manual.
- faults and damage attributable to force majeure, accident, improper use, incorrectly performed repairs, lack of maintenance and care or to wear and tear.

- faults and damage attributable to original spare parts not being used when replacing parts.
- changes to the product without the prior agreement of the firm GHOST-Bikes, insofar as defects and damage are attributable to these.

If you have any questions, please contact your specialist bicycle dealer.

18.3 EC Declaration of Conformity

Original EG-Konformitätserklärung

Hiermit erklärt

der Hersteller		**der in der EU niedergelassene Bevollmächtigte**	
Bezeichnung:	GHOST-Bikes GmbH	Bezeichnung:	*)[1]
Anschrift:	An der Tongrube 3 95652 Waldsassen	Anschrift:	*)[1]

daß folgendes Produkt

Bezeichnung:	EPAC	Typ:	*)[1]
Modell:	E-Hybride Trail Man 9000/4000 E-Hybride Trail Lady 9000/4000 E-Hybride Street Lady/Man	Handelsbezeichnung:	*)[1]

allen relevanten Bestimmungen folgender EG-Richtlinien entspricht.

- Richtlinie 2006/42/EG
- Richtlinie 2004/108/EG
-

Folgende harmonisierte Normen wurden vollständig angewendet:

Gem. Richtlinie 2006/42/EG	Gem. Richtlinie 2004/108/EG	
• EN 12100	• EN61000-3-2	• EN 61000-6-1
•	• EN61000-3-3	• EN 61000-6-3
•	• EN61000-3-11	•

Folgende nationalen Normen und sonstigen Spezifikationen (oder Teile daraus) wurden angewendet:

- EN 15194

Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen

Name: Kropf, Thomas Anschrift: An der Tongrube 3
95652 Waldsassen

Unterzeichner

Ausstellungsort:	Waldsassen
Ausstellungsdatum:	25. August 2011
Funktion des Unterzeichners im Unternehmen:	Technical Senior Manager
Name des Unterzeichners:	Zrenner, Udo
Unterschrift:	

GHOST
GHOST Bikes GmbH
An der Tongrube 3 · 95652 Waldsassen
Tel.: 09632-92 55 0 · Fax: 09632-92 55 15

[1] sofern zutreffend

Imprint

Manufacturer: GHOST Bikes GmbH
An der Tongrube 3
95652 Waldsassen
Germany
Fon: +49 9632 92550
Fax: +49 9632 925516
www.ghost-bikes.com
info@ghost-bikes.de

Consulting: Andreas Zauhar, Dipl.-Ing. FH,
Assessor for bike damage and valuations officially approved and
certified by the Chamber of Trade and Industry for Munich and Upper Bavaria
Horner Straße 12d
83329 Waging – Tettenhausen
Germany
Fon: + 49 8681 4779284
Fax: + 49 8681 4779285
www.andreas-zauhar.de
kontakt@andreas-zauhar.de

Illustrations / Terms

- Dropout C5
- Battery / rechargeable battery pack A1
- Tyres A2
- Brake made up of B1, A3, A4
- Brake lever B1
- Brake calliper A3
- Brake disc A4
- Socket H1
- Display B2
- Suspension fork A5
- Rim C1
- Fork A5
- Fork steering tube D1
- Grip (handlebar grip) B3
- Rear wheel A6
- Rear wheel hub A7, C9
- Cable C2
- Chain A8
- Chainring A9
- Chainring screw A25
- Chain stud C6
- Chain link C7
- Chain link plate C8
- Crankset made up of A25, A9, A11
- Chain stay A10
- Clamp E2, F3
- Click pedal F1
- Crank A11
- Crankset made up of A25, A9, A11
- Charging device I4
- Handlebars B5
- Handlebar stem A12
- Motor A7, C9
- Hub, rear A7, C9
- Hub, front A26

- Mains lead I3
- Top tube A13
- Pedal A14
- Frame made up of C5, A10, A13, A16, A19, A20
- Remote control lever B6
- Tyres A2
- Tyre iron (appearance varies according to manufacturer) I1
- Sprocket C10
- Saddle A15
- Seat clamp screw(s) A27
- Seat tube A16
- Seat stay A19
- Saddle post A17
- Saddle post clamp made up of E1, E2, E3, E4
- Seatpost clamp bolt(s) E1
- Seatpost clamp E2
- Switch F2
- Gearlever F2
- Rear derailleur A18
- Rear derailleur wheel A24
- Gearshift cable C3
- Disc brake made up of B1, A3, A4
- Inner tube
- Quick-release axle E3
- Quick-release unit made up of E3, E4
- Fork tube D2
- Quick-release lever E4
- Seat tube A16
- Seat stay A19
- Spoke C4
- Thru axle D4
- Plug I2
- Head tube A20
- Headset B4
- Dip tube D3
- Type plate A28
- Front derailleur A21

- Down tube A22
- Valve G3
- Valve cap G2
- Valve nut G1
- Handlebar stem A12
- Front wheel A23
- Front wheel hub A26
- Geared ring C10
- Geared ring cassette made up of several C10

1.1 Numbering / Classification

Illustration A

A1: Battery / battery pack (located in the down tube A22)

A2: Tyres

A3: Brake calliper

A4: Brake disc

A5: Suspension fork / fork

A6: Rear wheel

A7: Rear wheel hub, hub, rear; motor

A8: Chain

A9: Chainring

A10: Chain stay

A11: Crank

A12: Handlebar stem, stem

A13: Top tube

A14: Pedal

A15: Saddle

A16: Seat tube

A17: Saddle support

A18: Derailleur

A19: Seat stay

A20: Head tube

A21: Front derailleur

A22: Down tube

A23: Front wheel

A24: Rear derailleur wheel

A25: Chainring screw

A26: Hub, front, front wheel hub

A27: Seat clamp screw(s)

A28: Type plate (on the top tube)

Illustration B

B1: Brake lever

B2: Display

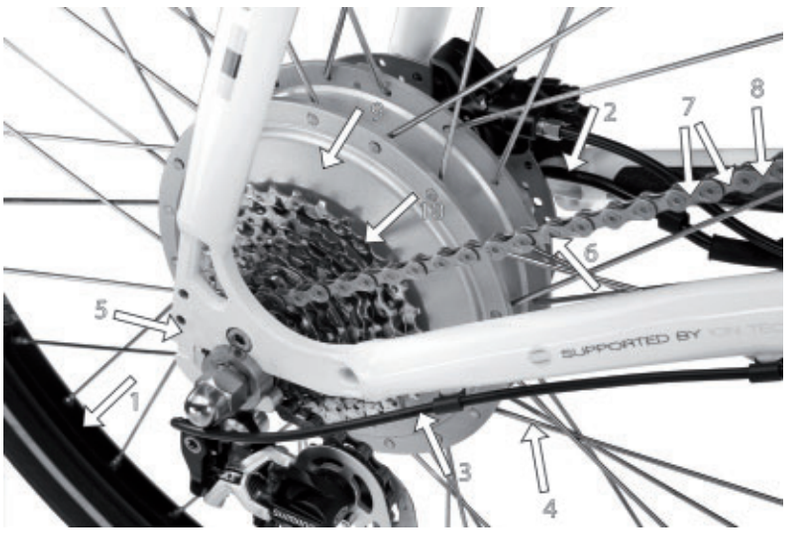
B3: Grip (handlebar grip)

B4: Headset

B5: Handlebars

B6: Remote control lever

Illustration C



C1: Rim

C2: Cable

C3: Gearshift cable

C4: Spoke

C5: Dropout

C6: Chain stud

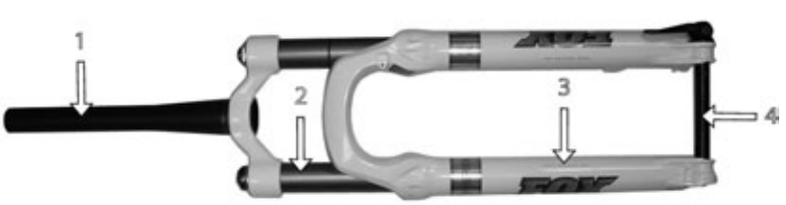
C7: Chain link

C8: Chain link plate

C9: Motor, hub, rear, rear wheel hub

C10: Sprocket, geared ring

Illustration D



D1: Fork steering tube

D2: Fork tube

D3: Dip tube

D4: Thru axle

Illustration E

E1: Seatpost clamp bolt

E2: Seatpost clamp, clamp

E3: Quick-release axle

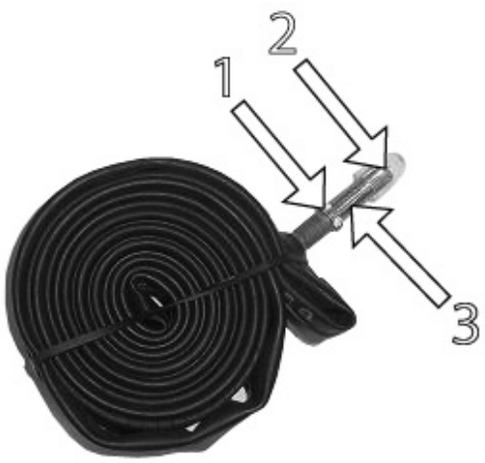
E4: Quick-release lever

Illustration F

F1: Click pedal

F2: Switch, gear lever

Illustration G



G1: Valve nut

G2: Valve cap

G3: Valve

G4: Inner tube

Illustration H

H1: Socket

Illustration I

I1: Tyre iron (appearance varies according to manufacturer) I1

I2: Plug

I3: Mains lead

I4: Charging device